

Section 9 Environmental Protection Act R.S.O. 1990

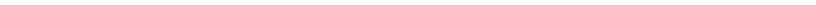
Sample Application Package

for an Air & Noise Certificate of Approval
including an Acoustic Assessment Report

Landfill Gas Collection and Control System

PIBS 6832e





FOREWORD

This document has been produced by the Environmental Assessment and Approvals Branch as an example of a complete application submission for an Air & Noise Certificate of Approval including an Acoustic Assessment Report. While every effort has been made to ensure the accuracy of the information contained in this document, it should not be construed as legal advice.

The following forms have been used in this sample application package:

- Application for Approval (Air & Noise)
- <u>Supporting Information Worksheet Supplement to Application for Approval. EPA s.9.</u>
- Costs for EPA s.9 Applications, Supplement to Application for Approval
- Supporting Information for a Maximum Ground Level Concentration Acceptability
 Request for Compounds with no Ministry POI Limit Supplement to Application for
 Approval, EPA s.9
- Emission Summary and Dispersion Modelling Report Checklist
- Acoustic Assessment Report Checklist (November 2005)
- Request Under s.20(4) to Have the Schedule 3 Standards Apply in Advance of the Date Required by Regulation 419/05
- NPC-233, "Information to be Submitted for Approval of Stationary Sources of Sound, October 1995";
- NPC-205, "Sound Level Limits for Stationary Sources in Class 1 and 2 Areas (Urban), October 1995":
- NPC-232 "Sound Level Limits for Stationary Sources in Class 3 Areas (Rural), October 1995"

Instructions for completing these forms and additional information about Air & Noise Certificates of Approval is available in the following publications:

- Green Facts: Certificates of Approval Air & Noise
- Guide to Applying for Approval Air & Noise
- Guide Application Costs for Air Emissions, EPA s.9
- Procedure for Preparing an Emission Summary and Dispersion Modelling Report
- Interim Guide to Estimate and Assess Landfill Air Impacts (MOE 1999)
- Supporting Information for the Preparation of an Acoustic Assessment Report

For more information about Certificates of Approval or to obtain an application package, please visit the Ministry of the Environment Internet site at http://www.ene.gov.on.ca or contact:

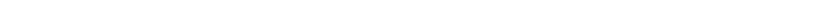
Toll Free: 1-800-461-6290

Phone: 416-314-8001

Fax: 416-314-8452

Ministry of the Environment Environmental Assessment and Approvals Branch 2 St. Clair Ave. W, Floor 12A Toronto, ON M4V 1L5

Email: EAABGen@ene.gov.on.ca



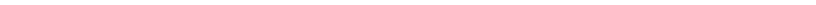
APPLICATION FOR CERTIFICATE OF APPROVAL (AIR & NOISE) ACME LANDFILL

Acme Inc.
123 Anywhere Street
Anytown, ON

JULY 2008

Prepared by: P.E.S. Waste Management Ltd. Anytown, ON

Project Number 053400-10





July 31, 2008

Virginia Trust-Worthy General Manager Acme Inc. 123 Anywhere Street Anytown, Ontario N9N 1A1

Environmental Assessment and Approvals Branch 2 St. Clair Avenue West Floor 12A Toronto, ON M4V 1L5

Dear Sir or Madam:

Re: Application for Certificate of Approval (Air) ACME Inc. Landfill Site, Anytown, Ontario

The enclosed is two copies of an Application for a Certificate of Approval (Air) and supporting documentation for the ACME Inc. Landfill Site, located in Anytown, Ontario.

The application contains the following:

- Application for Approval (Air & Noise);
- Attachment 1 Supporting Information Checklist;
- Attachment 2 Costs for EPA s.9 Applications, Supplement to Application for Approval;
- Attachment 3 Supporting Information for a Maximum Ground Level Acceptability Request Supplement to Application for Approval EPA s.9;
- Attachment 4 Request Under s.20 (4) to Have Schedule 3 Standards Apply;
- Attachment 5 Master Business Licence; and
- Attachment 6 Emission Summary and Dispersion Modelling Report.
- Attachment 7 Acoustic Assessment Report

A copy of the Application and supporting documentation has also been sent to the Ministry of the Environment (MOE), Toronto District Office.

Attachment 4 is the s.20 (4) speed-up request that accompanies the application, which to our knowledge is considered as a separate application by the ministry.

Sincerely,

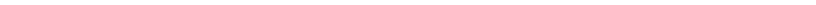
Virginia Trust-Worthy

Virginia Trust-Worthy Site Manager

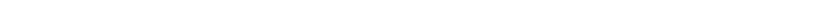
BB/ja/1

Encl.

c.c.: District Manager, MOE (Toronto District Office)



Application For Approval (Air & Noise)





Application for Approval (Air & Noise)

Ce formulaire est disponible en français

For Office Use Only						
Reference Number	Payment Received	Date (y/m/d)	Initials			
	\$					

General Information and Instructions

General:

Information requested in this form is collected under the authority of the *Environmental Protection Act*, R.S.O. 1990 (EPA) and the *Environmental Bill of Rights*, C. 28, Statutes of Ontario, 1993, (EBR) and will be used to evaluate applications for approval under Section 9 of the EPA. This form must be completed with respect to all requirements identified in the Guidance Material listed below in order for it to be considered an application for approval. **INCOMPLETE APPLICATIONS WILL BE RETURNED TO THE APPLICANT.** Even if the application is accepted as complete, the Ministry of the Environment may require additional information during the technical review of the application.

Instructions:

- 1. Applicants are responsible for ensuring that they complete the most recent application form. When completing this form, please refer to the following Guidance Material: the "Guide to Applying for Approval (Air & Noise), Section 9, EPA" and the "Guide Application Costs for Air Emissions, S. 9, EPA". Application forms and supporting documentation are available from the Environmental Assessment and Approvals Branch toll free at 1-800-461-6290 (locally at 416-314-8001), from your local District Office of the Ministry of the Environment, and in the "Publications" section of the Ministry of the Environment website at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir.
- 2. Questions regarding completion and submission of this application should be directed to the Environmental Assessment and Approvals Branch of the Ministry of the Environment at the address below or to the local District Office which has jurisdiction over the area where the facility is located. A list of these District Offices is available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/org/op.htm#Reg/Dist.
- A complete application package consists of a completed, signed application form and all required supporting information required by O. Reg. 419/05, identified in this
 form and the Guidance Material.
- 4. Three application packages must be submitted to the Ministry of the Environment. Two application packages, the original and a copy must be sent to:

Ministry of the Environment,
Director, Environmental Assessment and Approvals Branch,
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario, M4V 1L5
Phone: 416-314-8001

Toll Free: 1-800-461-6290 Email: <u>EAABGen@ene.gov.on.ca</u>

These application packages should include a cheque, money order or credit card payment, in Canadian funds, made payable to the Ontario Minister of Finance for the applicable application fee. A third copy of the application package must be sent to the local District Office which has jurisdiction over the area where the facility is located.

- 5. Information contained in this application form is not considered confidential and will be made available to the public upon request. Information submitted as supporting information may be claimed as confidential but will be subject to the *Freedom of Information and Protection of Privacy Act* (FOIPPA) and the *EBR*. If you do not claim confidentiality at the time of submitting the information, the Ministry of the Environment may make the information available to the public without further notice to you. For more information, please refer to Section 4.9 of the "Guide to Applying for Approval (Air & Noise), Section 9, EPA".
- 6. If the Applicant submits with the application a copy of their Master Business License (MBL) obtained from the Ministry of Government Services, the **shaded sections** within this form do not need to be completed (provided the information required appears on the face of the MBL). For additional information on the MBL please refer to Section 4.1 of the "Guide to Applying for Approval (Air & Noise), Section 9, EPA".

1. Applicant Information (Owner of works/facility)						
Applic	ant Name (legal name of inc	lividual (or organization as evidenced by legal dod	cuments)	Business Identification Number	
Acme Inc. 123456789					123456789	
Busin	ess Name (the name under v	which th	e entity is operating or trading if different	from the Applicant Name - also referred to as trade name)		
Applic	ant Type:			North American Industry Classification System (NAICS) (Code	
X	Corporation		Federal Government	562212		
	Individual		Municipal Government			
	Partnership		Provincial Government			
	Sole Proprietor Other (describe):					
Business Activity Description (a description of the business endeavour, this may include products sold, services provided or machinery/equipment used, etc.)						
Acn	ne Inc. owns and	ope	rates a municipal solid v	vaste landfill		

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2. Applicant Physical Address Civic Address- Street information (address that has civic numbering and street information includes street number, name, type and direction) Unit Identifier (i.e. suite or apartment number) 123 Anywhere Street Survey Address (used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory. Not required if Street Information is provided) Lot and Conc.: used to indicate location within a subdivided Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and township and consists of a lot number and a concession number consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan Reference Plan Postal Code Municipality/Unorganized Township County/District Province/State Country N6N 1A1 Prosperous County Canada Anytown Ontario 3. Site Information - (location where activity/works applied for is to take place) MOE District Office Is this an application for a mobile facility? Site Name Anytown District Office Yes Nο Address Information: Same as Applicant Physical Address? Yes No (If no, please provide site address information below) Site Address - Street information (address that has civic numbering and street information includes street number, name, type and direction) Unit Identifier (i.e. suite or apartment number) Survey Address (used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory) Lot and Conc.: used to indicate location within a subdivided Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan township and consists of a lot number and a concession number Non Address Information (includes any additional information to clarify applicants' physical location) County/District Postal Code Municipality/Unorganized Township Geo Reference Map Datum 7one Accuracy Estimate Geo Referencing Method **UTM Easting UTM Northing** Is the Site located in an area of development control as defined by the Niagara Escarpment Planning & Development Act (NEPDA)? If yes, please attach a copy of the NEPDA permit for proposed activity/work Yes No Is the Site located on the Oak Ridges Moraine Conservation Area as defined by the Oak Ridges Moraine Conservation Plan (ORMCP), a regulation made under the Oak Ridges Moraine Conservation Act (ORMCA)? Yes if yes, please attach proof of Municipal planning approval for the proposed activity/work No Is the Applicant the operating authority? Yes If no, please attach the operating authority name, address and phone number No Is the Applicant the owner of the land (site)? Yes No If no, please attach the owner's name, address and a signed letter granting consent for the installation and operation of the facilities Has this facility and one or more adjacent facilities been deemed to be one property under s.4 of O. Reg. 419/05? Yes If yes, please attach supporting information No *Note: all sources from the adjacent facility must be included in the Emission Summary and Dispersion Modelling Report. 4. Project Technical Information Contact Name Joe Consultant P.E.S. Waste Management Address Information: Same as Applicant Physical Address? Yes No (If no, please provide technical information contact address information below) Civic Address - Street information (address that has civic numbering and street information includes street number, name, type and direction) Unit Identifier (i.e. suite or apartment number) 234 Other Street Suite 1 Delivery Designator: If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery (i.e., RR#3) Municipality Postal Station Province/State Country Postal Code Anytown Ontario Canada N6K 2B2 Telephone Number (including area code & extension) Fax Number (including area code) E-mail Address

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JoeConsultant@PES.com

905-555-2399

905-555-2345

5. Project Information						
Type of Application:						
New Certificate of Approval for this Facility						
Did construction of the facility begin after November 30, 2005? Yes No						
Does the NAICS Code for the facility fall into Schedule 4 or 5 of O. Reg. 419/05?						
Amendment to current Certificate of Approval						
Basic Comprehensive Certificate of Approval						
Consolidated Certificate of Approval						
Current Certificate of Approval Number	Current Certificate of Approval Date of Issue (yyyy/mm/dd)					
	(777)					
Application Initiated by:						
Proponent Environmental Assessment Drovincial Officer Order (attach copy) Other (specify):						
List all other environmental approvals/permits applied or received in relation to this project under the <i>Environmental Protection Act</i> , the <i>Ontario Water Resources Act</i> , the <i>Safe</i>						
Drinking Water Act, Environmental Assessment Act or any other related legislation. (Please attach a separate list if more space is required).						
C of A (Waste) no. 5555-5A5AA5						
Project Provinting Commence (If FOR in early 11, 11)	and the second of the second o					
Project Description Summary (If EBR is applicable, this summary will be used in the EBR po	osting notice)					
This proposal is for a Certificate of Approval (Air) for	or the Acme Inc. Landfill Site Landfill Gas					
Collection and Control System (LGCCS). The Acm	ne Landfill Site is proposing to install the LGCCS in					
response to the Ministry's Amendment to O. Reg. 2						
Site including the proposed landfill gas flare, the lar	natili cells and the on-site roads and piles.					
Project Name (Project identifier to be used as a reference in correspondence)						
Acme Inc. Landfill Site						
Project S	Schodulo					
Estimated date for start of construction/installation (yyyy/mm/dd)	Estimated date for start of operation (yyyy/mm/dd)					
2009/08/01	2010/12/31					
6. O. Reg. 419/05 Requirements						
Which of the following sections of O. Reg. 419/05 applies to the facility? S.18 (Schedule 1) s.19 (Schedule 2) s.20 (Schedule 3)						
s.18 (Schedule 1) s.19 (Schedule 2) s.20 (Schedule 3) If s.20 of O. Reg. 419/05 applies to the facility, do all new sources of contaminant meet the 0	Good Engineering Practice (GEP) stack height requirements of s 15?					
Yes No	Cood Engineering Fractice (CEF) Stack Holgh Tequirements of 3.10:					
Has the facility been issued a notice or an order under s 7(1), 8(2), 10(2), 11(2), 13(2), 14(4)), 17(3), 20(4) or 20(5)?					
Yes If yes, please attach a copy of the notice, amended notice, revoked	I notice, order and/or additional supporting information					
No						
Has a request for approval for an alteration of a Schedule 3 standard under s. 32 of O. Reg.	. 419/05 been made for this facility?					
Yes If yes, please attach a copy of ministry acknowledgement letter (if available) or an overview of the request						
No						
Do you exceed any s.30 Upper Risk Thresholds (Schedule 6)?						
Yes No If yes, please attach additional supporting information						
7. Other Air Approvals for Facility – Please attach a separate list if more space	•					
List all other environmental approvals issued to this facility under the Section 9 of the Environmental List all other environmental approvals issued to this facility under the Section 9 of the Environmental List all other environmental approvals issued to this facility under the Section 9 of the Environmental List all other environmental approvals issued to this facility under the Section 9 of the Environmental List all other environmental approvals issued to this facility under the Section 9 of the Environmental List all other env	onmental Protection Act.					
						

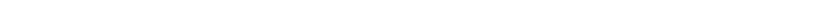
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8. Environmenta	nl Assessment Act (EAA) Requirements					
Are the works for v	which this proposal is made subject to (or exempted from) the requirements of the EAA? Yes X No					
If "Yes," plea	If "Yes," please check one of the following					
ī	he works for which this application is made are exempt from the requirements of the EAA under:					
	Section of Ontario Regulation No. or					
	Declaration/Exemption Order Number					
	If Regulation, Declaration Order or Exemption Order does not refer directly to this facility, state in a covering letter or other document why it does apply to the facility – Please provide supporting information					
	he works for which this application is made have fulfilled all of the requirements of the EAA through the completion of the Municipal Class EA process in accordance with the procedures set out in:					
	Schedule A Schedule B Schedule C					
	If Schedule A, was the project planned in accordance with section A.2.9 – Integration with the Planning Act of the Class EA?					
	Yes No					
	If Yes, please submit a copy of the summary required by section A.2.9.3 of the Class EA and a copy of the Planning Act notice.					
	If Schedule B or C of the Municipal Class EA, please submit a copy of the Notice of Completion.					
	Were Part II Order requests received? Yes No					
	If Yes, please submit a copy of the Minister's decision letter.					
,	The works for which this application is made have fulfilled all of the requirements of the EAA through the completion of the requirements of another class EA					
	rocess:					
ı	lame of Class EA:					
S	Schedule/Group/Category (if applicable):					
1	f applicable, please submit a copy of the Notice of Completion.					
V	Vere Part II Order requests received? Yes No					
	If Yes, please submit a copy of the Minister's decision letter.					
	he works for which this application is made have fulfilled all of the requirements for the Environmental Screening Process pursuant to O. Reg. 116/01 of the EAA through:					
	Completion of an Environmental Screening.					
	Completion of an Environmental Review					
	Please submit the Statement of Completion, and indicate if any Elevation Request(s) were received. If Elevation Request(s) were received, please submit a copy of the Director's decision letter. If the Director's decision was appealed to the Minister, please submit a copy of the Minister's decision letter.					
l ,	The works for which this application is made have fulfilled all of the requirements of the EAA through the preparation of an environmental assessment.					
	Please submit a copy of the signed Notice of Approval.					
	Was this undertaking designated subject to the EAA by regulation? Yes No					
	If yes, please indicate the regulation:					
	Il Bill of Rights Requirements (EBR) Requirements					
	or a prescribed instrument under EBR? X Yes No					
	s proposal exempted from EBR requirements? Yes X No ase check one of the following					
This pr	oposal has been considered in a substantially equivalent process or by a decision of a tribunal. Please provide supporting information					
This pr	oposal is for an amendment to or revocation of an existing Certificate of Approval that is not environmentally significant. Please provide supporting information					
This pr	oposal is for an emergency situation. Please provide supporting information					
This pr	oposal has been subject to or exempted from EAA Requirements. Please provide supporting information					
	ublic Consultation/Notification Separate list attached? Yes No					
	onsultation/notification (such as public hearings, notification of First Nations, request for an Alternative Standard under s.32 of O. Reg. 419/05, etc.) related to the een completed or are in the process of being completed. Please attach a separate list describing each of these consultation activities, the results achieved, and					
planned future con						

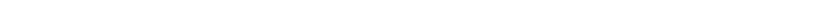
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11. List of Attachments - This is a list of all supporting information to this application and is subject to the Freedom of Information and Privacy Protection Act and the Environmental Bill of Rights. Attachment Attached Reference Can be disclosed Information Required by Application Form Supporting Information Worksheet - Supplement to X Yes Yes Attachment 1 No Application for Approval, EPA S.9 (PIBS 4873) Costs for EPA S.9 Applications - Supplement to Application Attachment 2 $\overline{\mathsf{X}}$ Yes Yes No for Approval (PIBS 4108) Application Fee (cheque or money order attached or credit \mathbf{X} \boxtimes Yes No card information provided) Information Supporting Compliance with O. Reg. 419/05 If no, indicate why: Emission Summary and Dispersion Modelling (ESDM) Report Minor Amendment (no technical review) X Yes prepared in accordance with s.22 of O. Reg. 419/05 No No Equipment Subject to Streamlined Review (including signed checklist – PIBS 5357e) Subsurface Approval Supporting Information for a Maximum Ground Level Concentration Acceptability Request for Compounds with no $|\mathbf{x}|$ I _{No} Attachment 3 X Yes No Ministry POI Limit - Supplement to Application for Approval, EPA S.9 (PIBS 4872) Information Supporting Compliance with Noise and Vibration Guidelines Noise Screening Process for S.9 Applications -Supplement to $|\mathbf{x}|$ Yes No Attachment 4 Yes No Application for Approval (PIBS 4871) Does the Equipment/Facility meet minimum separation Yes No Yes No If the Equipment/Facility does not meet minimum separation distance, then attach: Acoustic Assessment Report including signed checklist Attachment 7 Yes No Yes No (PIBS 5356e) 2. Vibration Assessment Report Yes Nο No Other Information Supporting Compliance With Applicable Regulations and Guidelines or to Describe the Project (include separate list if required) No Yes Yes No Yes No No Yes 12. Payment Information \$3. 550 Amount Enclosed: Please attach completed "Costs for EPA s.9 Applications - Supplement to Application for Approval" (PIBS 4108). Method of Payment Money Order Cheque VISA MasterCard American Express Credit Card Information (if paying by VISA, MasterCard or American Express) Name on Card (please print) Credit Card Number Expiry Date (m/y) Virginia Trust-Worthy 1111-1111-1111-1111 12/08 Cardholder Signature Date (y/m/d) Virginia Trust-Worthy July 31, 2008 *NOTE: credit card accepted for payments UNDER \$10,000.00 only. 13. Statement of Applicant I, the undersigned hereby declare that, to the best of my knowledge: The information contained herein and the information submitted in support of this application is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the Environmental Protection Act.. The Project Technical Information Contact identified in section 9 of this form is authorized to act on my behalf for the purpose of obtaining approval under Section 9 of the EPA for the equipment/processes identified herein. I have used the most recent application form (as obtained from the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or the Environmental Assessment and Approvals Branch at 1-800-461-6290) and I have included all necessary information required by O. Reg. 419/05, identified on this form and in the **Guidance Material** Name of Signing Authority (please print) Virginia Trust-Worthy General Manager Telephone Number (including area code & extension) Fax Number (including area code) E-mail Address 905-555-1985 905-555-1967 VTrust@ACMEInc.com Signature Date (y/m/d) Virginia Trust-Worthy July 31, 2008 Address Information: Same as Applicant Physical Address? 💢 Yes 🔲 No (If no, please provide signing authority mailing address information below) Civic Address - Street information (address that has civic numbering and street information includes street number, name, type and direction) Unit Identifier (i.e. suite or apartment number) Delivery Designator: If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery (i.e., RR#3) Municipality Postal Station Province/State Country Postal Code

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Attachment 1 Supporting Information Checklist



Ministry Ministère of the de

Environment l'Environnement



SUPPORTING INFORMATION WORKSHEET SUPPLEMENT TO APPLICATION FOR APPROVAL, EPA S.9

This document lists the attachments to the Section 9 Application Form that may be required from an applicant. This worksheet is intended to assist applicants in completing the Application Form and should be read in conjunction with the Guide to Applying for Approval (Air and Noise) dated February, 2005.

This worksheet must be attached to a Section 9 Application Form to be considered complete

	Attachment	Guide to	Required if	Included	Reference	Confidential
		Applying Reference				
1.	Proof of Legal Name of Applicant	Section 4.1	Always Required unless Master Business Licence is submitted	☐ Yes 🔀 N/A		Not Applicable
2.	Copy of Master Business Licence	Section 4.2	Applicant is an Ontario Company and wishes to simplify the application process	X Yes □ N/A	Att. 5	Not Applicable
3.	Legal Survey	Section 4.3	If survey address is provided	☐ Yes 🔀 N/A		
4.	Copy of NEDPA Permit	Section 4.3	Facility is within an area of development control as defined by the Niagara Escarpment Planning and Development Act	☐ Yes ⊠ N/A		☐ Yes ☐ No
5.	Copy of Municipal Planning Approval (ORMCA)	Section 4.3	Facility is within the Oak Ridges Moraine Conservation Area	☐ Yes ☒ N/A		Yes No
6.	Name, Address and Phone Number of the Operating Authority	Section 4.3	Equipment will be operated not by the applicant but by an Operating Authority	☐ Yes ☒ N/A		Yes No
7.	Name, Address and consent of the land/site owner for the installation/construction and operation of the equipment/facility	Section 4.3	Applicant is not the owner of the site where the facility is located	☐ Yes ⊠ N/A		Yes No

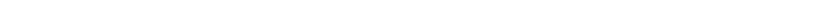
	Attachment	Guide to Applying Reference	Required if	Included	Reference	Confidential
8.	Copy of current Certificate of Approval	Section 4.5	Application is for an amendment to a current CofA	☐ Yes 🔀 N/A		Not Applicable
9.	List of all environmental approvals/permits applied for relating to this project or received in relation to this project.	Section 4.5	Other environmental approvals/permits have been applied for or issued under the EPA or OWRA in relation to this project only	☐ Yes 🔀 N/A		Not Applicable
10.	Copy of Provincial Officer's Order requiring submission of application	Section 4.5	Application is a result of a Provincial Officer's Order	☐ Yes 🗵 N/A		Not Applicable
11.	List of all approvals issued to this facility under Section 9 of the Environmental Protection Act	Section 4.6	Previous Section 9 approvals have been issued to the facility	☐ Yes ⊠ N/A		Not Applicable
12.	Supporting information that proposal is not a Prescribed instrument under the EBR	Section 4.6	Application meets the requirements of O. Reg 681/94	☐ Yes ⊠ N/A		☐ Yes ☐ No
13.	Supporting information relating to exemption from the public participation requirements of the <i>Environmental Bill of Rights</i> .	Section 4.7	Applicant is requesting that the proposal is exempt from posting on the Environmental Registry	☐ Yes ⊠ N/A		☐ Yes ☐ No
14.	Supporting information relating to exemption from or fulfilment of requirements under the <i>Environmental Assessment Act</i> .	Section 4.7	Application is part of an undertaking subject to the EAA	☐ Yes ⊠ N/A		☐ Yes ☐ No
15.	List describing public consultation activities related to this project	Section 4.7,8	Applicant is involved in any public consultation / notification activities in addition to EBR / EAA	☐ Yes 🔀 N/A		☐ Yes ☐ No
16.	Application Fee	Section 4.10	Always Required	X Yes □ N/A		Not Applicable
17.	Financial Assurance	Section 2	If The Section 9 Director determines that Financial Assurance is necessary based on the nature of the Application (Waste Disposal Site or Remediation for example)	☐ Yes ⊠ N/A		☐ Yes ☐ No
18.	Applicant Fee Worksheet	Section 4.9	Always Required	X Yes □ N/A		Not Applicable

Please note: the release of information contained in application forms and documentation submitted in support of applications for approval is subject to the provisions of the *Freedom of Information and Protection of Privacy Act*. This Act defines what may and may not be disclosed to the public, and is used to assess all requests for information contained in the documents on file with an application for approval.

The information submitted with an application for approval may also be subject to the *Environmental Bill of Rights*. In those situations, the application and the associated non-confidential supporting documentation is made available for review by members of the public.

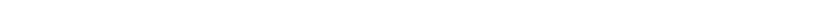
The applicants should therefore identify all documents as noted above which are to be considered confidential and must provide detailed evidence in support of this claim. This evidence will be one of the factors the ministry would consider when making a decision regarding disclosure of specific documents on file.

PIBS: 4873 Last Revised: February 18, 2005 Page 3 of 3



Attachment 2

Costs For EPA S.9 Applications, Supplement To Application For Approval



Ministry Ministère of the de

Company Name

Acme Inc.

Environment l'Environnement



Unit Identifier (unit, suite, apt, etc)

COSTS FOR EPA s.9 APPLICATIONS SUPPLEMENT TO APPLICATION FOR APPROVAL

Information requested in this form is collected under the authority of the Environmental Protection Act, R.S.O. 1990 (EPA) and the Environmental Bill of Rights, c. 28, Statutes of Ontario, 1993, (EBR) and will be used to evaluate applications for approval under Section 9 of the EPA. This form is a supplement to the Application for Approval (Air & Noise) and should be submitted with all applications for approval under Section 9 of the **EPA**.

O.Reg. 363/98 "Fees – Certificates of Approval" requires applicants for a certificate of approval under Section 9 of the EPA to pay a fee at the time of submitting the application. This fee must be calculated in accordance with the Fees Regulation. Applications that do not include the correct fee amount will not be processed by the EAAB. This form is intended to assist applicants in calculating the correct fee amount in accordance with the Fees Regulation. For instructions/assistance completing this form, please refer to the publication titled: "Guide: Application Costs for Air Emissions, s.9 Environmental Protection Act". This form and associated publications are available on the Ministry of the Environment web site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or by contacting the Environmental Assessment and Approvals Branch at 1-800-461-6290 or (416) 314-8001.

Acme Inc. Landfill Site

Site Name

Site Address - Street information (includes street number, name, type and direction)

123 A	nywhere Street	(, 5, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,			
Survey Address (used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory)					
Non Add	dress Information (includes any additional in	formation to clarify clients' physical location)		
Municipa	ality/Unorganized Township	County/District	Postal Code		
Anyto	wn	Prosperous County	N6N 1A1		
Applica	ation Type: Indicate the applicable aspec	ct(s) of the application and complete the	corresponding section(s) of this form.		
×		(Section 1) an existing facility that does not have any an existing facility that does not have any an existing equipment into one CofA or an existing equipment existing ex			
		quires technical review (Section 2) ing approval or condition on a certificate of a system, air pollution control equipment (cycles)			
	Administrative amendment of an existing approval (Section 3) This application is for a minor amendment to an existing approval such as a minor technical correction, etc, that does not require a technical review				
	Fee exempted amendment or revocation of an existing approval that does not require technical review (Section 4) This application is required by a condition on a Certificate of Approval, or to revoke a CofA for equipment/facility that is no longer in operation and does not require technical review				
Note:	Note: If you are seeking a Preliminary Review as defined by the Fee Regulation please contact the EAAB to discuss prior to proceeding with the application.				

SECTION 1: Application that Requires Technical Review Complete tables 1, 2 & 3 and enter your information in the summary table below.

()		Description	Cost
X	Α	Administrative processing (always required for all applications)	\$ 200
X	В	Fixed Cost Review for Equipment (Table 1)	\$ 700
	С	Emission Summary and Dispersion Modelling Report Review (Table 2)	\$
X	D	Noise Assessment Review (Table 3)	\$ 2650
		TOTAL COST:	\$ 3550

TABLE 1: Fixed Cost Review for Equipment

This table is to be used for new applications or for amendments or revocation to an existing approval. Applicants must identify all equipment that is the subject of the application and include the equipment in the appropriate category on the table. Sections used should be indicated in the left hand column. Equipment that has been previously approved does not have to be included on the table provided that the existing approved equipment is not being modified by the application.

Table	Table 1.1 Equipment subject to Site-wide Fees					
()	Description		Equipment Specification	Cost	Applicable Fee	
	1.1.1	Combustion Equipment that uses natural gas, propane, no. 2 oil, landfill gas or sewage treatment gas for fuel for the purpose of providing comfort heating or emergency power, producing hot water or steam, or heating material in a system that does not discharge to the atmosphere	Total Heat input of all units 50,000,000 kJ/hr	\$ 400	\$	
	1.1.2	Storage tanks	N/A	\$ 400	\$	
	1.1.3	Welding operations that use a maximum of 10 kilograms of welding rod per hour	N/A	\$ 400	\$	
	1.1.4	The application is for an amendment to an existing approval which will not result in an increase in the discharge of any contaminant that was reviewed by the Director for the purpose of issuing the existing certificate	N/A	\$400	\$	

Applicable Fee is based on the type of equipment, if the equipment does not meet the description or specification then use table 1.3

Table	e 1.2 Equipment Subject to Individual Fees					
()		Description	Quantity of Equipment		Cost	Applicable
()		Description	Formula to Calculate A	Α	0031	Fee
	1.2.1	Combustion Equipment that uses waste derived fuel for the purpose of providing comfort heating, burning 15 litres per hour	# of pieces of combustion equipment		x \$400 =	\$
	1.2.2	Heat cleaning ovens used for parts cleaning, and associated parts washers or degreasing equipment, other than solvent degreasing equipment	# of heat cleaning ovens		x \$400 =	\$
	1.2.3	Cooling towers	# of cooling towers divided by two, rounded up to the next whole number		x \$400 =	\$
X	1.2.4	Equipment used to control emissions of contaminants, other than a fume incinerator.	# of pieces of pollution control equipment	1	x \$400 =	\$ 400
	1.2.5	Laboratory fume hoods	# of laboratory fume hoods divided by 5, rounded up to the next whole number		x \$400 =	\$
	1.2.6	Paint spray booths and associated equipment that have a design capacity of up to 8 litres per hour of paint	# of paint spray booths		x \$400 =	\$
	1.2.7	Grain dryers	# of grain dryers		x \$400 =	\$

Applicable Fee is calculated based on the quantity of equipment, calculated using the formula specific for the equipment. Note the formula provides whole numbers only.

Table 1.3 Equipment not otherwise specified in the table					
()	Description		Number of Sources	Cost	Applicable Fee
	1.3.1	Equipment with a flow rate of less than or equal to 1.5 m ³ /second		x \$ 400 =	\$
	1.3.2	Equipment with a flow rate of greater than 1.5 m ³ /second		x \$1,200 =	\$
X	1.3.3	If one or more of the contaminants to which the application relates is not represented in the Ministry of the Environment publication titled "Summary of Point Impingement Standards, Point of Impingement Guidelines and Ambient Air Quality Criteria (AAQCs)" dated, September 2001 as amended from time to time.	N/A	\$300	\$ 300
			TOTAL COS	ST TABLE 1	\$ 700

Equipment (any plant, structure, apparatus, mechanism or thing that will discharge air and contaminants) that is the subject of the application that is not directly specified by Table 1.1 or 1.2 must be placed in one of the two categories in Table 1.3.

For equipment contained in this section of the table, multiple points of emission which satisfy specifically defined conditions of similarity will be considered equivalent to a single source when determining the application fee for a Certificate of Approval (Air).

The term "source" is defined in Ontario Reg. 363/98, Fees - Certificates of Approval as follows:

"source" means an individual point of emission or a distinct process or area from which emissions may originate, and,

- (a) if more than one stack or vent arises from a common process, that process is a source and the individual points or emission are not sources, and
- (b) if two or more separate processes, each of which discharges a distinct mixture of contaminants, are discharged to a common stack, each of the separate processes is a source.

Points of emission are considered "similar" if they satisfy the following conditions:

- (a) equivalent process activity;
- (b) common contaminant emissions;
- (c) emissions estimates are calculated using equivalent methods or formulas (with an allowance for modified process parameters); and
- (d) dispersion calculations are performed according to equivalent methods (with an allowance for modified process parameters) and considering equivalent Points of Impingement.

TABLE 2: Emission Summary and Dispersion Modelling Report Review

This table is to be used for new equipment applications at existing facilities or for amendments to existing approvals. Applicants must identify the number of sources described in the ESDM Report with contaminants common to the equipment forming the subject of the application to determine the cost as outlined in the table. Sources that have been approved and do not emit common contaminants do not have to be included in the determination of the number of sources.

()	Number of Sources	Previously Reviewed?	Cost		
	5 or less	No	\$ 0		
	3 01 1655	Yes	\$ 0		
	6 to 10	No	\$ 1,000		
	61010	Yes	\$ 800		
	11 to 20	No	\$ 2,000		
	11 to 20	Yes	\$ 1,600		
	More than 20	No	\$ 3,000		
	MOIO MAIN 20	Yes	\$ 2,400		
	TOTAL COST TABLE 2				

A "source" may include multiple points of emission, provided the points of emission are "similar".

Points of emission are considered "similar" if they satisfy the following conditions:

- (a) equivalent process activity;
- (b) common contaminant emissions;
- (c) emissions estimates are based on equivalent methods or formulas (with an allowance for modified process parameters); and
- (d) dispersion calculations are performed according to equivalent methods (with an allowance for modified process parameters) and considering equivalent Points of Impingement

When the ESDM Report is only for new sources, not previously approved, there is no cost for this review; it is included in the fixed cost for the particular discharge or equipment calculated under Table 1.

An ESDM Report may be considered previously reviewed when the equipment specified in the ESDM Report has been used to obtain a Certificate of Approval (Air) for that equipment in the past.

TABLE 3: Noise Assessment Review

This table is to be used for new applications or for amendments or revocation to an existing approval. Applicants must complete the Noise Screening Procedure included as an appendix in the ministry Document "Guide to Applying for Approval (Air and Noise)" dated January, 2005. If an applicant meets the screening requirements then no fee is required under this table. If the applicant does not meet the screening requirements and an Acoustic Assessment Report is required then the Applicants must identify all equipment that is included as a noise source in the Acoustic Assessment Report in the appropriate category on the following table. Sections used should be indicated within the left hand column. Equipment that has been previously approved does not have to be included on the table provided that the existing approved equipment is not being modified by the application.

Table 3.1 Equipment Subject to Individual Fees						
			Quantity of Equipme		Applicable	
()		Description Formula to Calculate A		Cost	Fee	
	3.1.1	Arc Furnaces	# of pieces		x \$2,250 =	\$
	3.1.2	Asphalt Plants	# of pieces		x \$2,250 =	\$
	3.1.3	Blow Down Devices	# of pieces		x \$2,250 =	\$
	3.1.4	Co-generation Facilities	# of pieces		x \$2,250 =	\$
	3.1.5	Crushing Operations	# of pieces		x \$2,250 =	\$
X	3.1.6	Flares	# of pieces	1	x \$2,250 =	\$ 2250
	3.1.7	Gas Turbines	# of pieces		x \$2,250 =	\$
	3.1.8	Pressure Blowers or Large Induced Draft Fans (flow rate > 47m ³ /second or static pressure > 1.25 kilopascals)	# of pieces		x \$2,250 =	\$

Table 3.2	2	Equipment Not Otherwise Specified in the Table					
()	Description		First 5 Pieces of Equipment	Additional Equipment	Cost		
X	3.2.1	Equipment that has not previously been reviewed by the Section 9 Director in connection with an application for a certificate of approval with respect to the facility	\$400	\$100 x <u>0</u>	\$ 400		
	3.2.2	Equipment is identical to equipment for which a noise assessment was previously reviewed by the Section 9 Director in connection with an application for a certificate of approval with respect to the facility	\$200	\$50 x	\$		

TOTAL COST TABLE 3	\$ 2650

SECTION 2: Revocation of an Existing Approval that Requires Technical Review Complete tables 1, 2 & 3 and enter your information in the summary table below

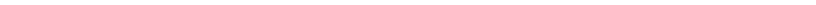
()		Category	Cost
	Α	Administrative processing (always required for all applications)	\$ 200
	В	Fixed Cost Review for Equipment (Table 1)	\$
	С	Emission Summary and Dispersion Modelling Report Review (Table 2)	\$
	D	Noise Assessment Review (Table 3)	\$
		TOTAL COST:	\$

SECTION 3: Administrative Amendment of an Existing Approval

()	Description	Cost
	Administrative amendment (no technical review involved)	\$ 100
	TOTAL COST:	\$

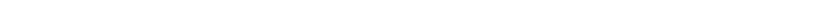
SECTION 4: Fee Exempted Amendment or Revocation of an Existing Approval that does not require technical review

()	Description	Cost
	Administrative revocation (no technical review involved)	\$ 0
	Any revocation requested as a result of requirements imposed by conditions of an existing approval	\$ 0
	Any amendment requested as a result of requirements imposed by conditions of an existing approval	\$ 0
	TOTAL COST:	\$



Attachment 3

Supporting Information For A Maximum
Ground Level Concentration
Acceptability Request Supplement To
Application For Approval. EPA S.9





Ministère de l'Environnement



SUPPORTING INFORMATION FOR A MAXIMUM GROUND LEVEL CONCENTRATION ACCEPTABILITY REQUEST FOR COMPOUNDS WITH NO MINISTRY POI LIMIT SUPPLEMENT TO APPLICATION FOR APPROVAL, EPA S.9

This form "Contaminants with no Ministry POI Limits Summary Table" is to be completed by applicants when a contaminant with no Ministry POI Limit is identified as part of an Emission Summary and Dispersion Modelling (ESDM) Report. Environmental Assessment and Approval Branch (EAAB) staff will forward the completed Table as part of a Maximum Ground Level Concentration (GLC) Acceptability Request to the Standards Development Branch (SDB). For further information on the Maximum GLC Acceptability Request process please see the Guide to Applying for Approval (Air and Noise) dated February, 2005.

An application for a Certificate of Approval will not be recommended for approval until SDB indicates that the concentration at POI proposed in the application is acceptable and is not likely to cause an adverse effect. **The EAAB requires that the applicant complete the form.**

INSTRUCTIONS

Applicants must complete the Table as applicable and attach the required supporting information as outlined below. The source for the majority of this information will be the ESDM Report or in the Application Form. Applicants are required to reproduce this information as part of the Maximum GLC Acceptability Request process and attach the information to the form so that the Table and supporting information can be forwarded to SDB. References to the ESDM Report or Application Form are not acceptable.

Applicants are requested to include at least one copy of the Table and supporting information in an unbound section of the application to ease EAAB's forwarding of the request to SDB.

1. Completing Contaminants with no Ministry POI Limits Summary Table

The following information must be included on the Contaminants with no Ministry POI Limits Summary Table:

- The chemical name for each contaminant with no Ministry POI Limit identified in the ESDM Report. Standard nomenclature should be provided and the use of abbreviations or trade names should be minimized.
- The CAS number for each contaminant identified. The Chemical Abstracts Services (CAS) number is a unique identifier for a chemical. The following web sites may provide a convenient way to obtain specific CAS numbers:

http://www.chemfinder.com

http://webbook.nist.gov/chemistry - Scroll down to Search Options

http://www.toxnet.nlm.nih.gov - Click on ChemIDplus

• The Maximum half-hour aggregate emission rate, expressed in grams per second, for each contaminant identified. The emission rate must consider all sources for the contaminant from

the facility and be calculated using the Maximum Emission Rate Scenario provided in the ESDM Report.

- The nature of the emission for each contaminant identified whether the emission is continuous or intermittent. Continuous emissions are defined as processes that have little variability over a shift or 24 hour period such as painting lines or continuous process reactors. Conversely, intermittent process have significant variability in the operating schedule and resultant emission rates such as paint spray booths that require significant step time or batch reactors.
- The predicted maximum half hour POI concentration, expressed in micrograms per cubic metre ($\mu g/m^3$) for each contaminant identified. This includes a POI concentration calculated using the models outlined in Reg 346. Other models may be considered on a case-by-case basis.

2. Supporting Information

Information should be attached to the Form to provide additional information on the contaminants with no Ministy POI Limits and the facility as described below:

- Information that was used to identify the contaminant at the facility. This information may include but not be limited to:
 - o a copy of the MSDS from the product identifying the contaminant(s) (if available);
 - o the Emission Factor used, with proper references, to calculate the emission rate for the contaminant(s);
 - o Source Assessment Testing results indicating the presence of the contaminant(s);
 - print outs from chemical properties services or references such as <u>www.ccinfoweb.ccohs.ca</u> or other sources;
 - o any other information used by the applicant to identify the contaminant(s).
- Scaled Area Location Plan indicating the location of the facility, the facility property line, all buildings on the facility, all local roads and features of the neighbourhood for the area surrounding the facility. The Scaled Area Location Plan may be the same figure required by the Noise Screening Process (PIBS 4871) outlined in the Guide to Applying for Approval (Air and Noise) dated February, 2005.
- Information on the main Process(es) that give rise and any control equipment used to reduce the emission of each contaminant identified and any information on the handling guidelines and/or Codes of Practice that are used to control the emission for each contaminant identified if applicable. Codes of Practice followed that are recommended by a business or government organization should be specifically referenced.

Contaminants with no MOE POI Limits Summary Table

For Office Use Only					
Reference #	Reviewer	Contact #			

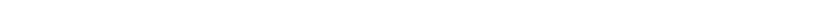
Company Name			American Industry Classification System (NAICS)						
Acme Inc.	Acme Inc. Landfill Site	5622	12						
Site Address - Street information (applies to	ite Address - Street information (applies to an address that has civic numbering and street information - Unit Identifier (identifies type of unit, such as suite & number)								
includes street number, name, type and direction	(n)								
123 Anywhere Street									
Survey Address (used for a rural location spec	Survey Address (used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory)								
Non Address Information (includes any addit	ional information to clarify clients' physical location)								
Municipality/Unorganized Township	County/District		Postal Code						
Anytown	Prosperous County		N6N 1A1						

☐ Scaled Area Location Plan Attached

Contaminant (a,b,c)		CAS ^(d) Number	Maximum ½ Hour Emission Rate (g/s)	Emission Type Continuous (C) Intermittent (I)	Predicted Maximum 1/2 Hour Average POI (e) Concentration (ug/m³)	Information on Contaminant (MSDS) Attached	Additional Supporting Information Attached to Form	For Office Use Only
1.	Benzene	71-43-2	912E-4	Continuous	1.9E-1	X		
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								

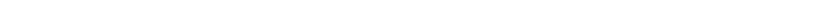
Notes:

- (a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).
- (b) All chemicals associated with the same process/operation. should be grouped together.
- (c) If complete speciation of a mixture is not provided, the unspecified fraction will be assumed to be the most toxic compound, consistent with the available description.
- (d) CAS Number: Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)
- (e) POI Concentration : Point of Impingement Concentration



Attachment 4

Request Under s.20 (4) to Have Schedule 3 Standards Apply



Ministry Ministère of the de Environment l'Environnement



REQUEST UNDER s. 20(4) TO HAVE THE SCHEDULE 3 STANDARDS APPLY IN ADVANCE OF THE DATE REQUIRED BY REGULATION 419/05

General Information

Information requested in this form is collected under the authority of the Environmental Protection Act, R.S.O. 1990 (EPA) and the Environmental Bill of Rights, C. 28, Statutes of Ontario, 1993, (EBR) and will be used to evaluate requests to have the Schedule 3 Standards of Air Pollution – Local Air Quality Regulation (O. Reg. 419/05) in advance of the date required by the regulation. **INCOMPLETE FORMS WILL BE RETURNED TO THE APPLICANT.** Even if the form is accepted as complete the Ministry of the Environment may request additional information during the review of this request.

- Questions regarding completion and submission of this request should be directed to the Environmental Assessment and Approvals Branch (EAAB) of the Ministry of the Environment at the address below or to the local Ministry of the Environment (MOE) District Office which has jurisdiction over the area in which the facility is located. A list of these District Offices is available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/org/op.htm#Reg/Dist.
- Two copies of this form must be submitted to the Ministry of the Environment. The original should be sent to:

Ministry of the Environment, Director, O.Reg. 419/05 s.20(4), **Environmental Assessment and Approvals Branch** 2 St. Clair Avenue West, Floor 12A Toronto, Ontario, M4V 1L5 Phone: 416-314-8001

Toll Free: 1-800-461-6290 Email: EAABGen@ene.gov.on.ca

A copy of this form should be sent to the local District Office which has jurisdiction over the area where the facility is located.

Information contained in this application form is not considered confidential and will be made available to the public upon request. Information submitted as supporting information may be claimed as confidential but will be subject to the Freedom of Information and Protection of Privacy Act (FOIPPA) and the EBR. If you do not claim confidentiality at the time of submitting the information, the Ministry of the Environment may make the information available to the public without further notice to you.

Instructions

This form should be used to request to have Schedule 3 standards from O. Reg. 419/05 apply in advance of the date required by the regulation and should be accompanied by a description of the circumstances surrounding this request. In accordance with s.20(4) a person who discharges or causes or permits the discharge of a contaminant from a property may request the Director to consider issuing a written notice under s. 20(4) requiring that s.20 apply to the facility on a date specified in the notice. This request may be made for all of the contaminants at the facility or for specified contaminants.

The Director will not consider a request under s. 20(4) unless the person making the request provides the concentration at point of impingement using an approved dispersion model acceptable under s. 20 for the contaminants that are the subject of this request. This information should be summarized on the table included in this form or indicated in an application for a Certificate of Approval.

If the request is limited to specific contaminants (the request is not for all contaminants at a facility) then the person making the request must also include the concentration at point of impingement using an approved dispersion model acceptable under s. 20 for all contaminants that are not included in the request but are associated with the contaminants that are the subject of the request. For example, if the request is for only particulate, and metals or semi-volatile contaminants are associated with the particulate, then the concentration at point of impingement for the associated metals or semi-volatile contaminants should also be provided on the table included in this form.

Note - your compliance limit remains Schedule 1 or 2 (whichever applies) until a date specified in the Notice.

Acme Inc. owns and operates a municipal solid waste landfill

Regulatory Authority

Section 20(4) The Director may give a person who discharges or causes or permits discharges of contaminants from a facility notice requiring the person to comply with this section, beginning on a date specified in the notice that is not later than January 31, 2020, if the notice is requested in writing by the person.

Section 20(6) A notice or order under subsection (4) or (5) applies in respect of all contaminants unless the notice or order provides that it applies only in respect of contaminants specified in the notice or order.

 Requestor Information (Owner of works/fa 	acility)
--	----------

1. Requestor Information (Owner of works/facility)						
Requestor Name (legal name of individual or organization as evidenced by legal documents) Business Identification Number						
Acme Inc. 123456789						
Business Name (the name under which the entity is operating or trading if different fr	rom the Applicant Name - also referred to as trade name)					
Requestor Type:	North American Industry Classification System (NAICS)	Code				
Corporation Federal Government	562212					
Individual Municipal Government						
Partnership Provincial Government						
Sole Proprietor Other (describe):						
Business Activity Description (a narrative description of the business endeavour, this	s may include products sold, services provided or machine	rv/equipment used. etc.)				

2. Project Technical Information Contact						
Joe Consultant		P.E.S. Waste Ma				
Civic Address - Street information (address that has civic number 234 Other Street	ring and street information includes :	street number, name, type and dire	Unit Iden Suite	ntifier (i.e. suite or apartment number)		
Delivery Designator: If signing authority mailing address is a Rural Route, Suburb	van Service, Mobile Route or Ge	eneral Delivery (i.e., RR#3)				
Municipality Postal Station	Province/Sta	nte Country	y	Postal Code		
Anytown	Ontario		ada	N6K 2B2		
Telephone Number (including area code & extension)	Fax Number (including area c	ode)	E-mail Address	t@DEC som		
905-555-2345	905-555-2399		JoeConsultan	t@PES.com		
3. Ontario Regulation 419/05 Information						
Does this request apply to all contaminants? (please con Yes No	nplete the attached table for all	applicable contaminants)				
2. How does the applied for change affect your compliance?	?		-			
Remain Compliant Remain	Non-Complaint					
Move Into Compliance Move In	nto Non-Compliance					
3. a) Which section of O. Reg. 419/05 currently applies to y				hedule 3) standards apply to your		
s.18 (Schedule 1) s. 19 (Sche	edule 2)	d/mm/yyyy)? February	1, 2020			
4. Is this form submitted with an Application for Certificate o	f Approval under Section 9 of th					
Yes if yes, is the application depend	ant on granting of notice?	X Yes	No			
No5. Does this application relate to an Application for Certifical	to of Approval under Section 0	of the EDA that has already be	on made to the Ministry o	f the Environment or an existing		
Certificate of Approval?	e of Approval under Section 9 to	or the EFA that has already be	en made to the Ministry o	Title Environment of all existing		
Yes if yes, please provide the applic	ation reference number or cu	rrent Certificate of Approva	Number:			
∑ No						
6. Will this change affect any limits or conditions in your exis	sting Certificate(s) of Approval u	under Section 9 of the EPA?				
Yes if yes, please provide additional supporting information:						
X No						
7. Is your facility currently subject to an approved abatemen	t plan (e.g. Order) that would be	e affected by this change?				
Yes if yes, have you discussed this	change with MOE District Off	ice representatives?	Yes N	0		
⊠ No						
8. Has a request for approval for an alteration of a Schedule		o .	,			
Yes if yes, please attach a copy of ministry acknowledgement letter (if available) or an overview of the request						
X No						
4. Statement of Requestor						
I, the undersigned hereby declare that, to the best of my I	knowledge:					
 The information contained herein and the information supproviding false information as per s.184(2) of the Environment. 		cation is complete and accurat	e in every way and I am a	ware of the penalties against		
The Project Technical Information Contact identified in s		ed to act on my behalf for the	purpose of obtaining a no	tice to have the Schedule 3		
standards of O. Reg. 419/05 apply in advance of the da	, , ,		,	"		
 I have used the most recent request form (as obtained fenvironmental Assessment and Approvals Branch at 1- 						
Name of Signing Authority (please print)		Title				
Virginia Trust-Worth		General Manage	r			
Telephone Number (including area code & extension)	Fax Number (including area	a code)	E-mail Address			
905-555-1985	905-555-1967		VTrust@ACM	IEInc.com		
Signature Virginia Trust-Worthy	!	Date (dd/mm/yyyy)				
b b		July 31, 2008				
Address Information : Civic Address - Street information (address that has civic number)	ing and street information includes st	reet number name type and direct	tion) I Init Ider	ntifier (i.e. suite or apartment number)		
123 Anywhere Street	g aa on oot imormation molades st		January China Idea			
Delivery Designator:						
If signing authority mailing address is a Rural Route, Suburba	ın Service, Mobile Route or Ger	neral Delivery (i.e., RR#3)				
Municipality Postal Station		l í	Country	Postal Code		
Anytown	ļ	Ontario	Canada	N6N 1A1		

Contaminants Requested Under Section 20(4)

Site Information
Site Name

For Office Use Only					
Reference #	Reviewer	Contact #			

Instructions

Please complete the following table providing the concentration at point of impingement using an approved dispersion model acceptable under the current section of O. Reg. 419/05 that applies to your facility as well as s. 20 for the contaminants that are the subject of this request.

If the request is limited to specific contaminants discharged from the facility (the request is not for all contaminants at a facility) then please include the concentration at point of impingement using an approved dispersion model for all contaminants that are not included in the request but are associated with the contaminants that are the subject of the request. For example, if the request is for only particulate, and metals or semi-volatile contaminants are associated with the particulate they should also be provided on the table. Indicate with a check mark on the left hand column which contaminants are the subject of the request or leave the column black if all contaminants are subject.

If you are applying for a Certificate of Approval for a facility under Section 9 of the EPA and this request is accompanying the application for approval, information regarding compliance with s. 18 or s. 19 compliance is not necessary (information may be included with the application for a Certificate of Approval)

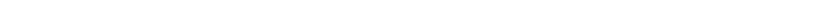
NAICS Code

Acme Landfill Site 562212					Notes for Tabl								
Site Address					Notes for Tabl	e:							
		ywhere Street										iations, acronyms, nu	ımeric codes,
Cou	inty /	District		Po	ostal Code					es and mixtures NO ⁻ ber : Chemical Abstr		nber (UNIQUE Identi	ier for a
Pro	spe	rous County		N	6N 1A1				chemical)				.oo. a
Dist	rict C	Office							c) POI Conc	entration : Point of Im	npingement Conce	entration	
Aı	nyto	wn District Office											
Do	you ı	require more space th	nan offered in the	table below?	?	Is this requ	uest being submitte	d with an	application for	a Certificate of App	roval (s.9) that in	icludes an ESDM R	eport?
] Y	es If yes, please a	ttach a separate	table		X Y	es If yes, the tal	ble below	does not need	to be completed			
X	N	lo				_ =	lo			-			
	C	ontaminant ^(a)	CAS ^(b) Number	Total Facility Emission Rate (g/s	n `	Schedule	Air Dispersion Model Used (if Sch. 3 please specify)		ximum POI ^(c) concentration (µg/m ³)	Averaging Period (hours)	MOE POI Limit (µg/m ³)	Limiting Effect	Percentage of MOE POI Limit
	1					1 🔲 2	O. Reg. 346						
	'					3							
	2					1 🔲 2	O. Reg. 346						
	_					3							
	3					1 🔲 2	O. Reg. 346						
	3					3							
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	•					3							
	6					1 🔲 2	O. Reg.346						
						3							

Co	ontaminant ^(a)	CAS ^(b) Number	Total Facility Emission Rate (g/s)	Schedule	Air Dispersion Model Used (if Sch. 3 please specify)	Maximum POI ^(c) Concentration (μg/m ³)	Averaging Period (hours)	MOE POI Limit (μg/m ³)	Limiting Effect	Percentage of MOE POI Limit
9				$\begin{array}{c c} \hline & 1 & \hline & 2 \\ \hline & 3 \\ \hline \end{array}$	O. Reg. 346					
40				\square 1 \square 2	O. Reg. 346					
10				3						
11					O. Reg. 346					
				3 1 2	O. Reg. 346					
12				3						
13				□ 1 □ 2	O. Reg. 346					
				3	O. Reg. 346					
14				$\begin{array}{c c} \hline & 1 & \hline & 2 \\ \hline & 3 \\ \hline \end{array}$	O. Reg. 340					
15					O. Reg. 346					
15	_			3						
16				$\begin{array}{c c} \hline & 1 & \hline & 2 \\ \hline & 3 \\ \hline \end{array}$	O. Reg. 346					
					O. Reg. 346					
17				3	-					
18					O. Reg. 346					
				3 1 2	O. Reg. 346					
19				$\begin{array}{c c} \square & 1 & \square & 2 \\ \hline & 3 & \end{array}$	O. Reg. 540					
20					O. Reg. 346					
20				3						
21				\square 1 \square 2	O. Reg. 346					
				3 $1 2$	O. Reg. 346					
22				3						
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				3	O. Reg. 346					
24				$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	O. Keg. 346					
05					O. Reg. 346					
25				3						

Attachment 5

Master Business Licence





Sample of a Master Business Licence

Business Name and Mailing Address:

Business

Address: SAME AS ABOVE

E-Mail: ¾♣★♣ →★♣+!!

Legal

Name(s): **४**+★**♦ →**★**+**!!

Type of

Legal Entity: \(\frac{1}{2} + \frac{1}{2} +

Page 1 of 1

To the Client: When the Master Business Licence is prestnted to any Ontario business program, you are not required to repeat information contained on this licence. Each Ontario business program is required to accept this licence when presented as part of its registration process.

Call the Ontario Business Connects Helpline at 1-800-565-1921 or (416) 314-9151 or TDD (416) 326-8566 if you have any problems.

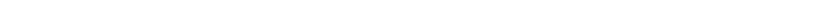
To the Ontario business program: A client is not required to repeat any information contained in this licecen in any other form used in your registration process.

00/00



Attachment 6

Emission Summary And Dispersion Modelling Report



FINAL

EMISSION SUMMARY AND DISPERSION MODELLING REPORT ACME LANDFILL

Acme Inc.
123 Anywhere Street
Anytown, ON

JULY 2008

Prepared by: P.E.S. Waste Management Ltd. Anytown, ON

Project Number 053400-10

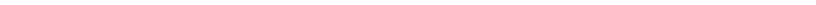


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EMISSION SUMMARY AND DISPERSION MODELLING REPORT CHECKLIST

Company Name:	Acme Inc.
Company Address:	123 Anywhere St.
	Anytown, Ontario N6N 1A1
Location of Facility:	123 Anywhere St.
	Anytown, Ontario N6N 1A1

The attached Emission Summary and Dispersion Modeling Report was prepared in accordance with s.26 of O. Reg. 419/05 and the guidance in the MOE document "Procedure for Preparing an Emission Summary and Dispersion Modelling Report" dated July, 2005 and "Air Dispersion Modelling Guideline for Ontario" dated July 2005 and the minimum required information identified in the check-list on the reverse of this sheet has been submitted.

Company Contact:	Acme Inc.
Name:	Virginia Trust-Worthy
Title:	General Manager
Phone Number:	905-555-1986
Signature:	Virginia Trust-Worthy
Date:	July 31, 2008
2 5.15	

Technical Contact:	
Name:	Joe Consultant
Representing: Phone Number:	P.E.S. Waste Management
	905-555-2345
Signature:	Joe Consultant
Date:	July 31, 2008
	

EMISSION SUMMARY AND DISPERSION MODELLING REPORT CHECKLIST

		Required Information			
				bmitted	Explanation/Reference
	Exe	cutive Summary and Emission Summary Table			
	1.1	Overview of ESDM Report	X	Yes	Executive Summary
	1.2	Emission Summary Table	X	Yes	Executive Summary
1.0	Intro	oduction and Facility Description			
	1.1	Purpose and Scope of ESDM Report (when report only	X	Yes	Section 1.1
		represents a portion of facility)			
	1.2	Description of Processes and NAICS code(s)	X	Yes	Section 1.3
	1.3	Description of Products and Raw Materials	X	Yes	Section 1.14 (Figure 4)
	1.4	Process Flow Diagram	X	Yes	Section 1.5
	1.5	Operating Schedule	X	Yes	
2.0	Initial Identification of Sources and Contaminants				
	2.1	Sources and Contaminants Identification Table	X	Yes	Section 2.1 (Table 1)
3.0	Assessment of the Significance of Contaminants and		X	Yes	
	Sou	rces			
	3.1	Identification of Negligible Contaminants and Sources	X	Yes	Section 3.1
	3.2	Rationale for Assessment	X	Yes	Section 3.2 (Appendix C)
4.0	Ope	rating Conditions, Emission Estimating and Data Quality			
	4.1	Description of operating conditions, for each significant	X	Yes	Section 4.1 (Appendix A)
		contaminant that results in the maximum POI concentration			
		for that contaminant			
	4.2	Explanation of Method used to calculate the emission rate	X	Yes	Section 4.2 (Appendix A)
		for each contaminant			
	4.3	Sample calculation for each method	X	Yes	Section 4.3 (Appendix A)
	4.4	Assessment of Data Quality for each emission rate	X	Yes	Section 4.4
5.0	Source Summary Table and Property Plan				
	5.1	Source Summary Table	X	Yes	Section 5.1 (Table 2)
	5.2	Site Plan (scalable)	X	Yes	Section 5.2 (Figure 3)
6.0		persion Modelling			
	6.1	Dispersion Modelling Input Summary Table	X	Yes	Section 6.1 (Table 3)
	6.2	Land Use Zoning Designation Plan	X	Yes	Section 6.2 (Figure 2)
	6.3	Dispersion Modelling Input and Output Files	X	Yes	Section 6.3 (Appendix D)
	<u> </u>				
7.0		ssion Summary Table and Conclusions	<u> </u>		
	7.1	Emission Summary Table	X	Yes	Section 7.1 (Table 4)
	7.2	Assessment of Contaminants with no MOE POI Limits	X	Yes	Section 7.2
	7.3	Conclusions	X	Yes	Section 7.3
		Appendices (Provide supporting information or details such as)			
	Supporting Calculations		X	Yes	Appendix A
	Landfill Gas Flare Specifications and Retention Time		X	Yes	Appendix B
	Supporting Information for Negligibility		X	Yes	Appendix C
	Dispersion Modelling Printouts		X	Yes	Appendix D
	Fugit	Fugitive Dust Management Best Practices		Yes	Appendix E
				Yes	
				Yes	

EXECUTIVE SUMMARY AND EMISSION SUMMARY TABLE

This Emission Summary and Dispersion Modelling (ESDM) Report was prepared to support an application for a Certificate of Approval (CofA). The ESDM Report was prepared in accordance with s.26 of O. Reg. 419/05 to support the CofA Application. In addition, guidance in the Ministry publication "Procedure for Preparing an Emission Summary and Dispersion Modelling Report" dated July 2005 (ESDM Procedure Document) was followed as appropriate.

Acme Inc. (ACME) operates a municipal solid waste landfill site (Site) located at 123 Anywhere St. in Anytown, Ontario. ACME is proposing to install a landfill gas collection and control system (LGCCS) that includes one (1) enclosed flare and associated blower. The proposed installation is in response to the Ontario Ministry of the Environment's (MOE) amendment to Ontario Regulation (O. Reg.) 232/98 requiring landfills with greater than 1.5 million cubic metres (m³) of waste in place by June 30, 2009, to implement landfill gas collection and control systems. The Site is located in an area zoned as Open Space.

The Site is currently subject to s.18 of O. Reg. 419/05. Therefore, the discharge of the Site has to meet the standards in Schedule 1 of O.Reg. 419/05 using one of the approved dispersion models listed in s.6 of O.Reg. 419/05. However, ACME Inc. has determined to use one of the United States Environmental Protection Agency (USEPA) dispersion models (AERMOD) and to have s. 20 of the Regulation (Schedule 3 standards) apply in advance of the date required by the regulation to discharge of all contaminants from the Site. This determination is based on the assessment that the Site stays in compliance after the speed up. Therefore, the Facility has submitted with this application a s.20(4) speed up request to have s. 20 of the regulation (Schedule 3 standards) apply in advance of the date required by the regulation.

The Facility is expected to emit products of combustion and trace non-methane organic compounds (NMOCs).

The maximum POI concentrations were calculated based on the Operating Conditions where all identified sources are operating simultaneously at their individual maximum rates of production. The maximum emission rates for each contaminant emitted from the sources were calculated in accordance with s.11 of O. Reg. 419/05 and the data quality assessment follows the process outlined in the requirements of the ESDM Procedure Document.

A POI concentration for each significant contaminant emitted from the Facility was calculated based on the maximum emission rates and the output from the approved dispersion model; the results are presented in the following Emission Summary Table in accordance with s.26 of O. Reg. 419/05.

The POI concentrations listed in the Emission Summary Table were compared against criteria listed in the Ministry publications "Summary of Standards and Guidelines to support Ontario Regulation 419: Air Pollution – Local Air Quality" dated February 2008 and "Jurisdictional Screening Level (JSL) List - A Screening Tool for O.Reg. 419: Air Pollution-Local Air Quality" dated February 2008.

Contaminants released by the Facility that are not found on the List of MOE POI Limits are considered to be Contaminants with No Ministry POI Limits. In accordance with the requirements of the ESDM Procedure Document, these contaminants are documented in the

completed copy of ministry document "Supporting Information for a Maximum Ground Level Concentration Acceptability Request Supplement for Approval, EPA S.9"

Of the 19 contaminants listed in the Emission Summary Table that have limits in the List of MOE POI Limits all the predicted POI concentrations are below the corresponding limits; for example, the POI concentration for a 10-minute averaging period of hydrogen sulphide is 2.66 $\mu g/m^3$ at 20.4% of the standard of 13 $\mu g/m^3$. At 20.4%, hydrogen sulphide has the highest concentration relative to the corresponding MOE Limit. The next highest contaminant is carbon monoxide at 19.6%.

1.0 INTRODUCTION AND FACILITY DESCRIPTION

This Emission Summary and Dispersion Modelling (ESDM) Report was prepared in accordance with s.26 of O. Reg. 419/05. In addition, guidance in the Ministry publication "Procedure for Preparing an Emission Summary and Dispersion Modelling Report" dated July 2005 (ESDM Procedure Document) PIBS 3614e02 was followed as appropriate.

For ease of review and to promote clarity, this ESDM Report is structured to correspond to each of the items listed in the Ministry publication "2005 Emission Summary and Dispersion Modelling Check-List" PIBS 5357e.

This section provides a description of the Site as required by subparagraph 1 of s.26 (1) of O. Reg. 419/05.

1.1 Purpose and Scope of ESDM Report

This ESDM Report was prepared to support an application for a Certificate of Approval (CofA) for an enclosed flare at the Site. The ESDM Report was prepared in accordance with s.26 of O. Reg. 419/05 to support the CofA Application.

ACME Inc. (ACME) is the owner and operator of the ACME Landfill site (Site) located at 123 Anywhere Street, Anytown, Ontario. Construction of the Site started in 1990. The Site is located in an area zoned as Open Space.

ACME is proposing to install a landfill gas collection and control system (LGCCS) that includes one (1) enclosed flare and associated blower at the Site located at 123 Anywhere St. in Anytown, Ontario. The proposed installation is in response to the Ontario Ministry of the Environment (MOE) amendment to Ontario Regulation (O. Reg.) 232/98 that requires all landfills in Ontario with greater than 1.5 million cubic meters (m³) of waste in place by June 30, 2009, to implement a LGCCS. This application was prepared to obtain approval for the proposed installation.

The location of the Site is presented on Figure 1 and the land use designation of the Site and surrounding area is presented on Figure 2. The location of the Site and each emission source is identified on Figure 3, with the location of each of the sources identified with source reference numbers.

1.2 Description of Processes and NAICS Code(s)

The Site opened in 1990 and is expected to reach maximum capacity by the end of 2014 with a total area of approximately 49.5 hectares.

The Site operates as a typical municipal solid waste landfill. The existing landfill holds approximately 2.7 million m³ of waste with a total expansion of the site to hold an ultimate capacity of approximately 3.9 million m³ of waste. The Site accepts solid, non-hazardous waste from the Town of Anytown, Ontario. The North American Industrial Classification System (NAICS) Code for the Site is 562212 – "Solid Waste Landfill".

In accordance with O. Reg. 232/98, the landfill gas (LFG) collection system will be designed with sufficient capacity to control LFG generated by the approved Site capacity and in accordance with landfill development and operating principles. The LGCCS will control LFG and greenhouse gases, and in doing so will control other issues such as odour. The LGCCS is designed to accommodate the peak LFG production rate, estimated to be 2,510 m³/hr (1,480 cubic feet per minute (cfm)) using the Scholl Canyon Model. The peak LFG production rate is expected to occur in 2015. The major components of the LGCCS include the following:

- Collection field removes LFG from the wastes within the limits of the waste disposal area and includes collection piping to convey LFG from the field to the LFG management facility;
- LFG management facility houses mechanical and electrical components required for the extraction and delivery of LFG for disposal by flaring;
- Condensate traps and forcemains removes liquid condensate from the LFG collection system and directs the condensate to the municipal wastewater system;
- Leachate management facility collects and treats leachate from the landfill and disposes of clean effluent water; and
- LFG utilization facility for processing and utilization of the collected LFG in an environmentally sound fashion.

The primary combustion equipment will be an enclosed drum flare. The flare will have the capacity to meet the maximum production rate of LFG, as it has the capacity to combust a maximum of 1,600 cfm of LFG. Specifications provided by the flare manufacturer support a 99.9 percent (%) destruction efficiency for the flare. The flare will be a natural draft enclosed drum flare designed for LFG with the following performance specifications:

- Minimum 875 degrees Celsius (°C) operating temperature;
- Minimum retention time of 0.75 seconds; and
- Destruction of better than 99.9% of the total hydrocarbons in the collected LFG.

The viability of LFG utilization to generate electricity with the potential to further enhance other Site facilities, such as the leachate treatment plant, will be considered from time to time as warranted by changes in energy market conditions.

1.3 Description of Products and Raw Materials

Process information and LFG generation data are provided in greater detail in Appendix A. The LFG enclosed flare specifications are included in Appendix B. Refer to Table 1 – Source and Contaminant Identification Table, which tabulates the individual sources of emissions at the Site.

1.4 Process Flow Diagram

Refer to Figure 4 – Process Flow Diagram, for a graphical representation of the processes at the Site.

1.5 Operating Schedule

The proposed LGCCS will operate 24 hours per day, 7 days per week and 52 weeks per year. The worst-case operating scenario occurs at the peak production of LFG for the Site, with the flare operating at a collection capacity of 80%.

2.0 INITIAL IDENTIFICATION OF CONTAMINANTS AND SOURCES

This section provides an initial identification of all of the sources and contaminants emitted at the Site, as required by subparagraphs 2 to 4 of s.26 (1) of O. Reg. 419/05.

2.1 Contaminants and Sources Identification Table

Table 1 – Contaminants and Sources Identification Table tabulates all the emission sources at the Site and provides the information required for subparagraphs 2 to 4 of s.26 (1) of O. Reg. 419/05.

The expected contaminants emitted from each source are also identified in Table 1. Each of the identified sources has been assigned a source reference number.

The location of the discharges from each of the sources is presented on Figure 3 – Site Layout Plan. The location of each of the sources is specified with the source reference number.

3.0 ASSESSMENT OF THE SIGNIFICANCE OF CONTAMINANTS AND SOURCES

This section provides an explanation for each contaminant and source identified as negligible in Table 1 – Contaminants and Sources Identification Table, as required by subparagraph 5 of s. 26(1) of O. Reg. 419/05.

In accordance with s.8 of O. Reg. 419/05 emission rate calculations and dispersion modelling does not have to be performed for emissions from negligible sources or for the emission of negligible contaminants from significant sources.

3.1 Identification of Negligible Contaminants and Sources

All four sources listed in Table 1 – Sources and Contaminants Identification Table, two (2) have been identified as negligible. The negligible sources are identified in the table. For example, the maintenance garage heater has been labelled as negligible.

The remaining two (2) sources are significant. For example, the landfill gas enclosed flare (S-1) is indicated as a significant source. These sources are included in the dispersion modelling for the Site.

Some contaminants from the sources that are considered significant have been identified as negligible. Each negligible contaminant from a significant source is identified in the table. For example, the expected contaminants emitted from the landfill area (S-3) are identified as non-methane organic carbon compounds (NMOCs) and odour. The emission of odour is identified as negligible in the table. The remaining contaminant NMOCs emitted from S-3 is considered significant.

4

3.2 Rationale for Assessment

For each source in Table 1 – Sources and Contaminants Identification Table, that has been identified as being negligible there is an accompanying documented rationale. The technical information required to substantiate the argument that each of the identified sources is negligible is presented in Appendix C – Supporting Information for Assessment of Negligibility.

For each contaminant in Table 1 that has been identified as being negligible there is an accompanying rationale. For example, the rationale for the conclusion that emission of products of combustion from source S-2 is negligible is listed as a source in Table B-3 of the ESDM Procedure Document. The technical information required to substantiate this is presented in Appendix C – Supporting Information for Assessment of Negligibility.

4.0 OPERATING CONDITIONS, EMISSION ESTIMATING AND DATA QUALITY

This section provides a description of the operating conditions used in the calculation of the emission estimates and an assessment of the data quality of the emission estimates for each significant contaminant from the Site as required by subparagraphs 6 and 7 of s.26 (1) of O. Reg. 419/05. In accordance with s.8 of O. Reg. 419/05, emission rate calculations and dispersion modelling does not have to be performed for emissions from negligible sources or for the emission of negligible contaminants from significant sources.

4.1 Description of Operating Conditions

As noted in Section 1.2, the NAICS code for the Site is 562212 – Solid Waste Landfill. NAICS Code 562212 is under code 5622 Waste Treatment and Disposal as listed in Schedule 5 of Regulation 419/05. Regulation 419/05 states that a facility shall not be deemed part of the class identified by code 5622 unless the facility is a solid waste combustor or incinerator, or it is used for hazardous waste treatment or disposal.

However, construction of the Site started in 1990 therefore, s.18 of O.Reg. 419/05 currently applies to the Site. However, the Site will use one of the USEPA dispersion models (AERMOD) to demonstrate compliance with Schedule 3 standards of O.Reg. 419/05 before the regulatory phase-in date of February 1, 2020. This determination is also based on the assessment that the Site stays in compliance after the speed up. Therefore, the Facility has submitted with this application a s.20(4) speed up request to have section 20 of the regulation (Schedule 3 Standards) apply in advance of the date required by the regulation to the discharge of all contaminants from the site.

Section 10 of O. Reg. 419/05 states that an acceptable operating condition is a scenario that assumes operating conditions for the Site that would result, for the relevant contaminant, in the highest concentration of the contaminant at POI that the Site is capable of, the operating condition described in this ESDM Report meets this requirement.

The averaging time for the operating condition is based on the applicable averaging times for the contaminants in Schedule 3 of O. Reg. 419/05. The operating condition used for this Site that results in the maximum concentration at a POI is the scenario where the LFG is at peak production for the Site and the flare is operating at its maximum capacity. The individual maximum rates of production for each source of emissions are explicitly described in

Appendix A – Supporting Calculations. In this particular situation, the emissions rate of the contaminants for both 1-hour and 24-hour standards are the same because the flare will be operating 24-hours per day.

4.2 Explanation of the Methods Used To Calculate Emission Rates

The maximum emission rates for each contaminant emitted from the sources were calculated in accordance with requirements of the ESDM Procedure Document.

The emission rate for each contaminant emitted from an identified source was estimated and the methodology for the calculation is documented in Table 2 – Source Summary Table. For example, the emission of carbon monoxide from the Enclosed Flare (S-1) was calculated using an emission factor (EF) technique.

4.3 Sample Calculations

The technical rationale, including sample calculations, required to substantiate the emission rates presented in Table 2 – Source Summary Table is documented in Appendix A – Supporting Calculations.

4.4 Assessment of Data Quality

This section provides a description of the assessment of the data quality of the emission estimates for each significant contaminant from the Site, as required by sub paragraph 7(iii) of s.26(1) of O.Reg. 419/05.

The assessment of the data quality of the emission rate estimates for each significant contaminant emitted from the significant sources was performed.

For each contaminant the emission rate was estimated and the data quality of the estimate is documented in Table 2 – Source Summary Table. The assessment of data quality for each source is documented in Appendix A.

All the emission rates listed in Table 2 – Source Summary Table are documented as having the best available Data Quality and correspond to the operating scenario where all significant sources are operating simultaneously at their individual maximum rates of production. Therefore, emission rate estimates listed in Table 2 – Source Summary Table are not likely to be an underestimate of the actual emission rates, and use of these emission rates will result in a calculated concentration at POI greater than the actual concentrations.

5.0 SOURCE SUMMARY TABLE AND SITE PLAN

This section provides the table required by subparagraph 8 and the site plan required by subparagraph 9 of s.26 (1) of O. Reg. 419/05.

5.1 Source Summary Table

The emission rate estimates for each source of contaminants are documented in Table 2 – Source Summary Table in accordance with the requirements of subparagraph 8 of s.26 (1) of O. Reg. 419/05.

For each source of contaminants the following parameters are referenced:

- Contaminant;
- Chemical Abstract Society (CAS) reference number;
- Source reference number:
- Source description;
- Stack parameters (flow rate, exhaust temperature, diameter, height above grade, height above roof);
- Location referenced to a Cartesian coordinates system presented on Figure 3 Site Layout Plan;
- Maximum emission rate;
- Averaging period;
- Emission estimating technique;
- Estimation data quality; and
- Percentage of overall emission.

5.2 Site Plan

The locations of the emission sources listed in Table 2 – Source Summary Table are presented on Figure 3 – Site Layout Plan; the location of each of the sources is specified with the source reference number. The location of the property-line is indicated on Figure 3 – Site Layout Plan, with the end points of each section of the property-line clearly referenced in UTM coordinates. The location of each source is referenced to this coordinate system under a column in Table 2-Source Summary Table.

The heights of the structures that are part of the Site are labeled on Figure 3 –Site Layout Plan.

6.0 DISPERSION MODELLING

This section provides a description of how the dispersion modelling was conducted at the Site to calculate the maximum concentration at a POI, as required by sub paragraphs 10 to 13 of s.26(1) of O.Reg. 419/05.

The dispersion modelling was conducted in accordance with the ministry publication "Air Dispersion Modelling Guideline for Ontario" PIBS 5165e (The ADMGO).

The Site is subject to s.18 of O. Reg. 419/05. Therefore, the discharge of the Site has to meet the standards in Schedule 1 of O.Reg. 419/05 using one of the approved dispersion models listed in s.6 of O.Reg. 419/05. However, ACME has determined to use one of the USEPA dispersion models (AERMOD) to demonstrate compliance with Schedule 3 standards of O.Reg. 419/05 before the regulatory phase-in date of February 1, 2020. This determination is also based on the assessment that the Site stays in compliance after the speed up. Therefore, ACME has submitted with this application a s.20(4) speed up request so that the AERMOD air dispersion model is used to demonstrate compliance with O.Reg. 419/05 Schedule 3 standards in advance of the date required by the regulation.

Since the Schedule 3 standards of O. Reg. 419/05 apply, the modelled impact of contaminant emissions are assessed as half-hour, one-hour, and 24-hour maximum POI concentrations. The

appropriate model to assess the maximum POI impact is the USEPA AERMOD model. The following approved dispersion model and pre-processors were used in the assessment:

- AERMOD dispersion model (v. 07026);
- AERMAP surface pre-processor (v. 06341); and
- BPIP building downwash pre-processor (v. 04274).

6.1 Meteorology and Landuse Data

A land use zoning plan is provided on Figure 2 – Land Use Zoning Designation Plan. Figure 2 – Land Use Zoning Designation Plan also illustrates the extent of the Site property boundary and provides the zoning of adjacent land uses. The Site is located in an area predominantly zoned Open Space (OS) and Agricultural (A). There is an area approximately 200 metres north of the Site zoned for Semi-Detached Family Dwellings (R2) and the area east of the Site is zoned OS, Green Space (G). An area zoned for Single Family Detached Dwelling (R1) is located approximately 50 metres to the northeast of the Site. Areas south of the Site are zoned Retail Commercial (RC) and Industrial (M1). Also, there are Residential areas zoned R1 located approximately 250 metres south of the Site and for Multiple Family Dwellings (R3) located 375 metres from the Site.

The MOE has created, and periodically updates, AERMOD-ready regional meteorological datasets for use with dispersion modelling using AERMOD. Depending upon the local land use of the Site, the dataset used can be urban, crops, or forest. As the Site is situated within the geographical coverage of MOE Anytown District Office and based on the land-use characteristics around the site, the "crops" dataset (last updated in 2007) was used. The surface data is from the Toronto Pearson Airport and the Upper Air Data is from Buffalo, New York. The meteorological data covers the dates from January 1, 1996 to December 31, 2000. The hourly data includes many factors which affect the dispersion of air contaminants including wind speed, wind direction, temperature, ceiling height, and atmospheric stability.

Subparagraph 10 of s.26 (1) of O. Reg. 419/05 requires a description of the local land use conditions if meteorological data described in paragraph 2 of s.13 (1) of O. Reg. 419/05 was used. In this assessment, MOE's regional meteorological dataset described in paragraph 1 of s. 13(1) of O. Reg. 419/05 was used.

6.2 Coordinate System

The UTM coordinate system, as per Section 5.2.2 of the ADMGO, was used to specify model object sources, buildings and receptors. All coordinates were defined in the North American Datum of 1983 (NAD83).

The model sources, buildings, and property lines are shown in Figure 3 – Site Layout Plan.

6.3 Terrain

Section 16 of O. Reg. 419/05 sets out when terrain must be considered. In this assessment, digital elevation model (DEM) data was obtained from the MOE website and processed using the AERMOD terrain processor AERMAP. AERMAP determines base terrain elevation using the

DEM data for all sources, receptors and buildings, and provides the user with a suitable input file for use with AERMOD.

6.4 Dispersion Modelling Input Summary Table

A description of the way in which the approved dispersion model was performed is included in Table 3 – Dispersion Modelling Input Summary Table. This table meets both the requirements of s.26 (1) 11 and Sections 8-17 of O. Reg. 419/05 and follows the format provided in the ESDM Procedure Document.

The Site Landfill area was modelled as an area source, with the release height based on the final Site contours. The proposed LFG flare was modelled as a point source. A summary of the AERMOD source input parameters is provided in Table D.1 of Appendix D. The location of the area source, as well as the flare source are shown in Figure 3 – Site Layout Plan. The location of the property-line in relation to the dispersion modelling sources is also presented in Figure 3 – Site Layout Plan.

The emission rates used in the dispersion model meet the requirements of s. 11(1) 1 of O. Reg. 419/05, which requires that the emission rate used in the dispersion model is at least as high as the maximum emission rate that the source of contaminant is reasonably capable of for the relevant contaminant. These emission rates are further described in Appendix A – Supporting Calculations. A summary of the modelled emission rates for each source is provided in Table D.1 of Appendix D.

The emission rates inputted into the model are identical for both 1 hour and 24 hour POI standards because the flare will be operational 24-hours per day.

6.5 Building Downwash

The Site buildings were entered into the model using the USEPA Building Profile Input Program (BPIP), and run to evaluate any building cavity downwashing that may be occurring. Cavity downwash can result in air contaminants being forced to ground level prematurely under certain meteorological conditions. The on-site buildings were modelled with an average roof height of 6 metres.

6.6 Deposition

AERMOD has the capability to account for wet and dry deposition of substances that would reduce airborne concentrations. The deposition algorithm in the AERMOD model was not used for this assessment and therefore the predicted modelled POI concentrations are considered to be conservative.

6.7 Averaging Time and Conversions

O.Reg. 419/05 Schedule 3 standards and guidelines were used in this ESDM to demonstrate compliance. The majority of the standards and guidelines are based on 24-hour or 1-hour averaging periods with carbon monoxide having a standard based on a 0.5-hour averaging period and hydrogen sulphide having a standard based on a 10-minute averaging period. As AERMOD cannot model averaging periods less than 1-hour, the 1-hour averaging period was used with the resulting predicted concentrations converted to the applicable shorter averaging period in

accordance with s.17 of O. Reg. 419/05. This conversion was completed using the MOE recommended conversion factors of 1.2 for a 0.5-hour averaging period and 1.65 for a 10-minute averaging period.

6.8 Area of Modelling Coverage

A tiered receptor grid was defined starting with a rectangular boundary that enclosed all the modelled sources (bounding box). A tiered grid was then defined starting from the edge of the bounding box with a fine resolution, to coarser resolutions further away. All tiered distances were defined relative to the bounding box. The receptor tiered grid used in this assessment follow s.14 of O.Reg. 419/05 and is described as follows:

- 20 m spacing within 200 m of the edge of the bounding box;
- 50 m spacing from 200 to 500 m;
- 100 m spacing from 500 to 1,000 m; and
- 200 m spacing from 1,000 to 2,000 m.

A property line ground level receptor grid with 10 m spacing was used to evaluate the maximum property boundary concentration. No receptors were placed inside the Site's property line.

6.9 Dispersion Modelling Input and Output Files

The information entered into the approved dispersion model is recorded in Appendix D. AERMOD dispersion model data of all the contaminants is provided in electronic form in Appendix D. As an illustration, a copy of the contour plot and the model output file for the contaminant vinyl chloride is also contained in Appendix D.

7.0 EMISSION SUMMARY TABLE AND CONCLUSIONS

This section provides the table required by subparagraph 14 of s.26 (1) of O. Reg. 419/05 and provides an interpretation of the results as required by the ESDM Procedure Report.

7.1 Emission Summary Table

A POI concentration for each significant contaminant emitted from the Site was calculated based on the emission rates listed in Table 2 – Source Summary Table and the output from the approved dispersion model presented in Appendix D. The results are presented in Table 4 – Emission Summary Table. This Table follows the format provided in the ESDM Procedure Document. For each source of significant contaminants the following parameters are referenced:

- Contaminant name;
- Chemical Abstract Society (CAS) number;
- Total facility emission rate;
- Approved dispersion model used;
- Maximum POI concentration;
- Averaging period for the dispersion modelling;
- MOE POI limit;
- Indication of limiting effect;
- Schedule in Regulation 419/05; and
- The percentage of standard.

The POI concentrations listed in Table 4 – Emission Summary Table are the highest concentrations calculated by the model with no meteorological anomalies allowed in s. 6.6 of the ADMGO eliminated. These concentrations were compared against criteria listed in the publication "Summary of Standards and Guidelines to support Ontario Regulation 419: Air Pollution – Local Air Quality" dated February 2008 and the jurisdictional screening level listed in the document "Jurisdictional Screening Level (JSL) List, A Screening Tool for Ontario Regulation 419: Air Pollution Local Air Quality" dated February 2008.

Of the 19 contaminants listed in Table 4 that have limits in the List of MOE POI Limits, all the predicted POI concentrations are below the corresponding limits. For example the POI concentration for a 24-hour averaging period of vinyl chloride is $0.018~\mu g/m^3$ at 1.8% of the standard of $1~\mu g/m^3$. At 20.4% hydrogen sulphide has the highest concentration relative to the corresponding MOE Limit.

7.2 Assessment of Contaminants with No MOE POI Limits

Subparagraph 14 subsection viii of s.26 (1) of O. Reg. 419/05 requires an indication of the likelihood, nature and location of any adverse effect if the contaminant is not listed in any of Schedules 1, 2, and 3.

Two contaminants, carbon dioxide and benzene, do not have corresponding criteria limits in the List of MOE POI Limits and are considered to be a Contaminant with No Ministry POI Limit. However, the maximum predicted POI concentration for carbon dioxide is below the screening level identified in the MOE's Jurisdictional Screening Level List dated February 2008. Therefore, no further assessment has been completed for this contaminant. For benzene, this contaminant is documented in accordance with the requirements of the ESDM Procedure Document and a completed "Supporting Information for a Maximum Ground Level Concentration Acceptability Request Supplement to Application for Approval, EPA S.9" has been included as part of this application for a Certificate of Approval (Air). No further assessment has been completed for this contaminant.

7.3 Conclusions

This ESDM Report was prepared in accordance with s.26 of O. Reg. 419/05. In addition, guidance in the ESDM Procedure Document was followed as appropriate.

The Site is subject to s.18 of O. Reg. 419/05. Therefore, the discharge of the Site has to meet the standards in Schedule 1 of O.Reg. 419/05 using one of the approved dispersion models listed in s.6 of O.Reg. 419/05. However, ACME has determined to use one of the USEPA dispersion models (AERMOD) to demonstrate compliance with Schedule 3 standards of O.Reg. 419/05 before the regulatory phase-in date of February 1, 2020. This determination is also based on the assessment that the Site stays in compliance after the speed up. Therefore, ACME has submitted with this application a s.20(4) speed up request to have s.20 of the regulation (Schedule 3 standards) apply in advance of the date required by the regulation.

The emission rate estimates for each source of significant contaminants are documented in Table 2 – Source Summary Table. All the emission rates listed in Table 2 correspond to the operating scenario where all sources are operating simultaneously at their individual maximum

rates of production. Therefore these emission rate estimates listed in Table 2 – Source Summary Table, are not likely to be an underestimate of the actual emission rates.

A POI concentration for each contaminant emitted from the Site was calculated based on the calculated emission rates and the output from the dispersion model; the results are presented in Table 4 – Emission Summary Table.

The POI concentrations listed in Table 4 were compared against criteria listed in the publication "Summary of Standards and Guidelines to support Ontario Regulation 419: Air Pollution – Local Air Quality" dated February 2008.

Of all the contaminants listed in Table 4 that have limits in the list of MOE POI Limits all the predicted POI concentrations are below the corresponding limits.

This ESDM Report demonstrates that the Site can operate in compliance with O. Reg. 419/05.

Prepared By:

Jack Worker

Jack Worker

P.E.S. Waste Management Ltd.

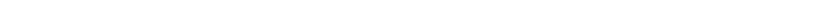
Approved by:

Joe Consultant

Joe Consultant

P.E.S. Waste Management Ltd.





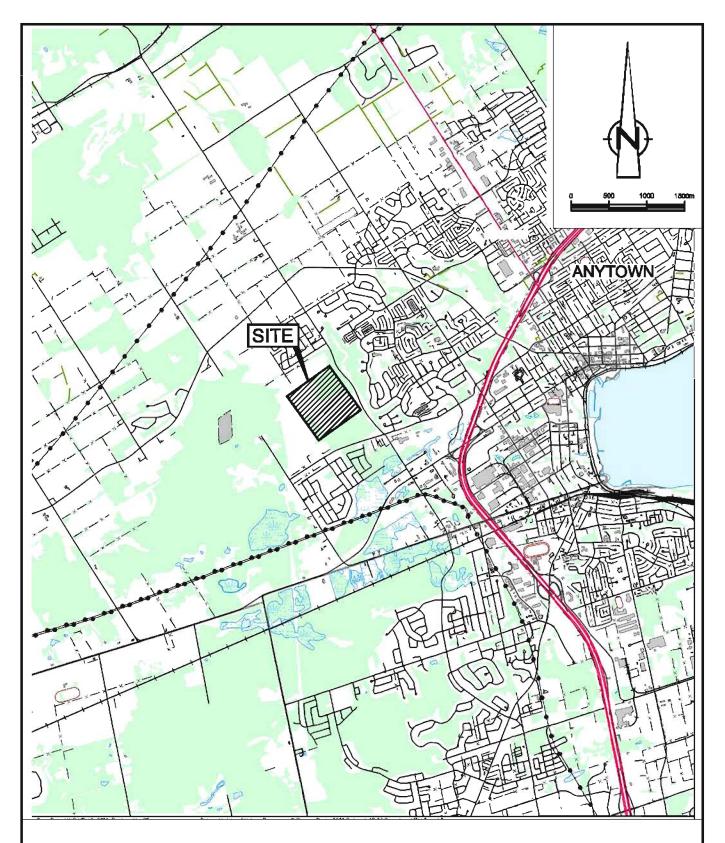
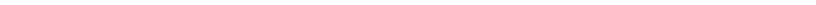
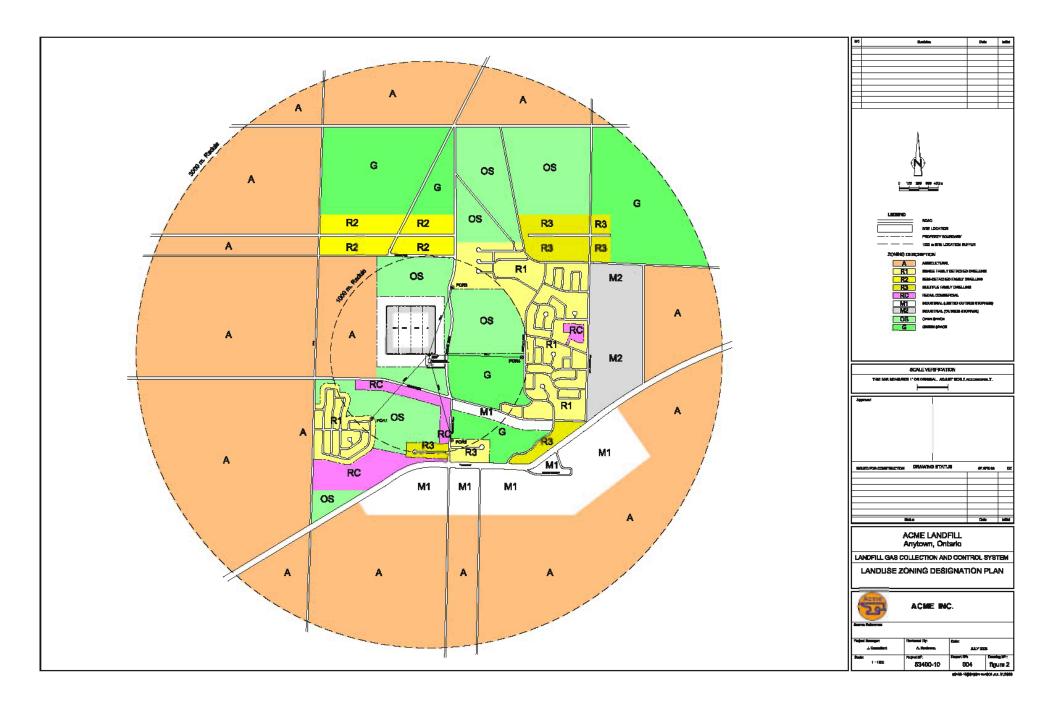


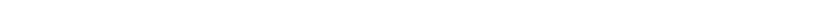
figure 1

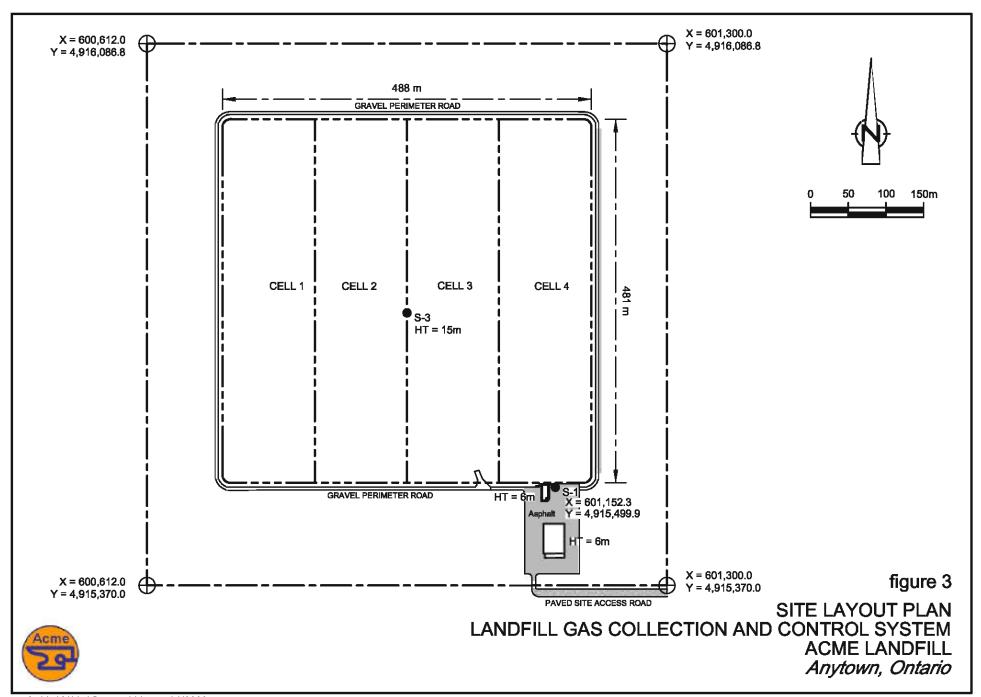


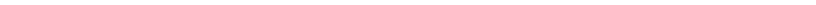
SITE LOCATION PLAN LANDFILL GAS COLLECTION AND CONTROL SYSTEM ACME LANDFILL Anytown, Ontario











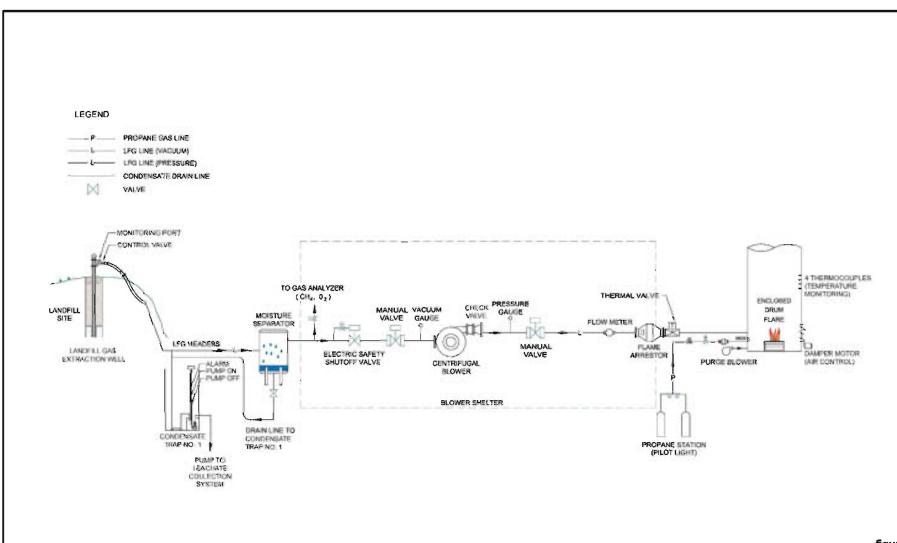
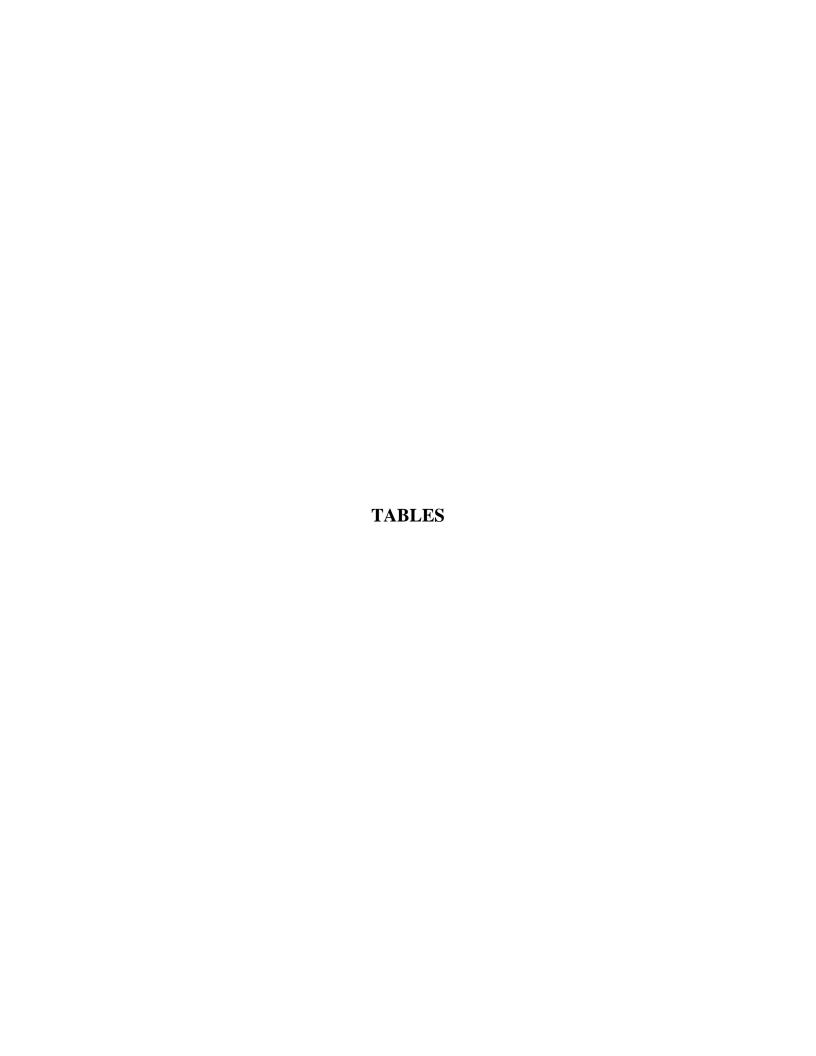




figure 4
PROCESS FLOW DIAGRAM
LANDFILL GAS COLLECTION AND CONTROL SYSTEM
ACME LANDFILL
Anytown, Ontario





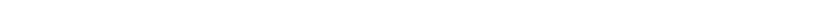


Table 1
Sources and Contaminants Identification Table
Acme Landfill Site
Anytown, Ontario

	Source Information			Significant	
Source ID	Source Description	Location	Expected Contaminants	(Y/N)	Rationale
S-1	Landfill Gas Enclosed Flare		Products of Combustion NMOCs	Y	
S-2	Maintenance Garage Heater		Products of Combustion	N	Listed in Table B-3 of the ESDM Procedure Document (See Appendix C)
S-3	Landfill Area		NMOCs Odour	Y N	Generalized MOE Guidance (Section 7.3)
	Paved Roads. Unpaved Roads, Piles	NA	Dust	N	Listed in Table 7-3 of Section 7.4 of the ESDM Procedure Document (See Appendix C)

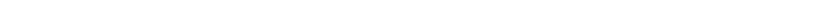


Table 2 Source Summary Table Acme Landfill Site Anytown, Ontario

	Source Data								Emission Data						
Contaminant	CAS No.	Source ID	Source Description	Stack Flow Rate	Stack Exit Velocity	Stack Exit Gas Temperature	Stack Inner Diameter	Height Above Grade	Stack Height Above Roof	Source Coordinates (x,y)	Maximum Emission Rate (1)	Averaging Period	Emission Estimation Technique	Emission Data Quality	% of Overall Emissions
				(Am ³ /s)	(m/s)	(C)	(m)	(m)	(m)	(m)	(g/s)	(hours)			(%)
Vinyl Chloride	75-01-4	S-1 S-3	Landfill Gas Enclosed Flare Landfill Area	0.76 NA	0.11 NA	875 NA	3.00 NA	9 15.00	NA NA	601152, 4915499 600713, 4915507	1.45E-05 2.67E-03	24 24	EC EC	AVERAGE AVERAGE	0.4% 99.6%
Dichloromethane	75-09-2	S-1 S-3	Landfill Gas Enclosed Flare Landfill Area	0.76 NA	0.11 NA	875 NA	3.00 NA	9 15.00	NA NA	601152, 4915499 600713, 4915507	2.83E-05 7.06E-03	24 24	EC EC	AVERAGE AVERAGE	0.4% 99.6%
Hexane	110-54-3	S-1 S-3	Landfill Gas Enclosed Flare Landfill Area	0.76 NA	0.11 NA	875 NA	3.00 NA	9 15.00	NA NA	601152, 4915499 600713, 4915507	1.32E-05 3.29E-03	24 24	EC EC	AVERAGE AVERAGE	0.4% 99.6%
cis-1,2-Dichloroethene	156-59-2	S-1 S-3	Landfill Gas Enclosed Flare Landfill Area	0.76 NA	0.11 NA	875 NA	3.00 NA	9 15.00	NA NA	601152, 4915499 600713, 4915507	6.41E-06 1.60E-03	24 24	EC EC	AVERAGE AVERAGE	0.4% 99.6%
Benzene	71-43-2	S-1 S-3	Landfill Gas Enclosed Flare Landfill Area	0.76 NA	0.11 NA	875 NA	3.00 NA	9 15.00	NA NA	601152, 4915499 600713, 4915507	3.63E-06 9.09E-04	24 24	EC EC	AVERAGE AVERAGE	0.4% 99.6%
Trichloroethene	79-01-6	S-1 S-3	Landfill Gas Enclosed Flare Landfill Area	0.76 NA	0.11 NA	875 NA	3.00 NA	9 15.00	NA NA	601152, 4915499 600713, 4915507	8.62E-06 2.16E-03	24 24	EC EC	AVERAGE AVERAGE	0.4% 99.6%
Toluene	108-88-3	S-1 S-3	Landfill Gas Enclosed Flare Landfill Area	0.76 NA	0.11 NA	875 NA	3.00 NA	9 15.00	NA NA	601152, 4915499 600713, 4915507	7.72E-05 1.93E-02	24 24	EC EC	AVERAGE AVERAGE	0.4% 99.6%
Tetrachloroethene	127-18-4	S-1 S-3	Landfill Gas Enclosed Flare Landfill Area	0.76 NA	0.11 NA	875 NA	3.00 NA	9 15.00	NA NA	601152, 4915499 600713, 4915507	1.44E-05 3.60E-03	24 24	EC EC	AVERAGE AVERAGE	0.4% 99.6%
Ethylbenzene	100-41-4	S-1 S-3	Landfill Gas Enclosed Flare Landfill Area	0.76 NA	0.11 NA	875 NA	3.00 NA	9 15.00	NA NA	601152, 4915499 600713, 4915507	1.14E-05 2.85E-03	24 24	EC EC	AVERAGE AVERAGE	0.4% 99.6%
Total Xylenes	1330-20-7	S-1 S-3	Landfill Gas Enclosed Flare Landfill Area	0.76 NA	0.11 NA	875 NA	3.00 NA	9 15.00	NA NA	601152, 4915499 600713, 4915507	2.99E-05 7.47E-03	24 24	EC EC	AVERAGE AVERAGE	0.4% 99.6%
1,2,4-Trimethylbenzen	95-63-6	S-1 S-3	Landfill Gas Enclosed Flare Landfill Area	0.76 NA	0.11 NA	875 NA	3.00 NA	9 15.00	NA NA	601152, 4915499 600713, 4915507	8.39E-06 2.10E-03	24 24	EC EC	AVERAGE AVERAGE	0.4% 99.6%
1,1-Dichloroethane	75-34-3	S-1 S-3	Landfill Gas Enclosed Flare Landfill Area	0.76 NA	0.11 NA	875 NA	3.00 NA	9 15.00	NA NA	601152, 4915499 600713, 4915507	5.41E-06 1.35E-03	24 24	EC EC	AVERAGE AVERAGE	0.4% 99.6%
Cyclohexane	110-82-7	S-1 S-3	Landfill Gas Enclosed Flare Landfill Area	0.76 NA	0.11 NA	875 NA	3.00 NA	9 15.00	NA NA	601152, 4915499 600713, 4915507	4.11E-06 1.03E-03	24 24	EC EC	AVERAGE AVERAGE	0.4% 99.6%
Hydrogen Sulphide	7783-06-4	S-1 S-3	Landfill Gas Enclosed Flare Landfill Area	0.76 NA	0.11 NA	875 NA	3.00 NA	9 15.00	NA NA	601152, 4915499 600713, 4915507	7.12E-05 1.78E-02	24, 10-min 24, 10-min	EC EC	ABV AVG ABV AVG	0.4% 99.6%
Carbon Monoxide	630-08-0	S-1	Landfill Gas Enclosed Flare	0.76	0.11	875	3.00	9	NA	601152, 4915499	3.34E+00	0.5	EF	AVERAGE	100.0%
Nitrogen Dioxide	10102-44-0	S-1	Landfill Gas Enclosed Flare	0.76	0.11	875	3.00	9	NA	601152, 4915499	1.81E-01	24, 1	EF	AVERAGE	100.0%
Sulphur Dioxide	7446-09-5	S-1	Landfill Gas Enclosed Flare	0.76	0.11	875	3.00	9	NA	601152, 4915499	1.42E-01	24, 1	EC	ABV AVG	100.0%
Particulate Matter	NA	S-1	Landfill Gas Enclosed Flare	0.76	0.11	875	3.00	9	NA	601152, 4915499	7.52E-02	24	EF	MARGINAL	100.0%
Carbon Dioxide	124-38-9	S-1 S-3	Landfill Gas Enclosed Flare Landfill Area	0.76 NA	0.11 NA	875 NA	3.00 NA	9 15.00	NA NA	601152, 4915499 600713, 4915507	5.30E+02 1.25E+02	24 24	EC EC	ABV AVG ABV AVG	80.9% 19.1%

Notes:
(1) Refer to Appendix A for detailed methodolgy behind emission estimates.

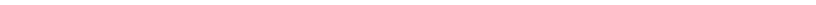


Table 3

Dispersion Modelling Input Summary Table Acme Landfill Site Anytown, Ontario

Relevant Section of the Regulation	Section Title	Description of How the Approved Dispersion Model was Used
Section 8	Negligible Sources	Sources and contaminants that were considered negligible were explicitly identified, and therefore were not modelled, in accordance with s.8 of O. Reg. 419. See Table 1 - Sources and Contaminants Identification Table for more information.
Section 9	Same Structure Contamination	Not applicable as the ACME Landfill is the only tenant occupying the site, and does not have a child care facility, health care facility, senior's residence, long-term care facility or an educational facility located at the Site.
Section 10	Operating Conditions	All equipment was assumed to be operating at the maximum production rates at the same time. See Section 4.1 and Appendix A of the ESDM Report.
Section 11	Source of Contaminant Emission Rate	The emission rate for each significant contaminant emitted from a significant source was estimated, the methodology for the calculation is documented in Table 2 - Source Summary Table. See Section 4.1 and Section 4.2 and Appendix A of the ESDM Report for more information.
Section 12	Combined Effect of Assumptions for Operating Conditions and Emission Rates	The operating conditions were estimated in accordance with s.10(1) and 1 and S.11 (1) 1 of O. Reg. 419 and are therefore considered to result in the highest concentrations at POI that the Facility is capable of for the contaminants emitted. See Section 4.1 and Section 4.2 of the ESDM Report.
Section 13	Meteorological Conditions	MOE Meteorological data obtained from Anytown, Ontario was used.
Section 14	Area of Modelling Coverage	Completed in accordance with Ministry of Ontario Modelling Guidance
Section 15	Stack Height	Documented in accordance with Ministry of Ontario Modelling Guidance
Section 16	Terrain Data	MOE available Terrain Data sets were used.
Section 17	Averaging Periods	The Averaging Periods as summarized on Table 2 were used.

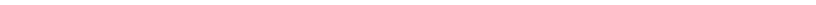


Table 4

Emission Summary Table
Acme Landfill Site
Anytown, Ontario

		Total Facility Emission Rate	Air Dispersion Model Used	Max. POI Concentration	Averaging Period	MOE POI Limit	Limiting	Regulation Schedule #	Percentage of MOE POI Limit
		Emission Rate	Model Osed	Concentration	Terioa	Limu	Effect	Schedule #	(%)
Contaminant	CAS No.	(g/s)		(ug/m3)	(hours)	(ug/m3)			(70)
V:1 Ch1:: 1-	75.01.4	2.695.02	AERMOD	1 905 02	24	1	II141-	C -1 41- 2	1.00
Vinyl Chloride	75-01-4	2.68E-03		1.80E-02	24	1	Health	Schedule 3	1.80
Dichloromethane	75-09-2	7.09E-03	AERMOD	8.83E-01	24	220	Health	Schedule 3	0.40
Hexane	110-54-3	3.31E-03	AERMOD	4.52E+01	24	7,500	Health	Schedule 3	0.60
cis-1,2-Dichloroethene	156-59-2	1.61E-03	AERMOD	4.21E-01	24	105	Health	POI Guideline	0.40
Benzene	71-43-2	9.12E-04	AERMOD	6.12E-03	24			N/A	
Trichloroethene	79-01-6	2.16E-03	AERMOD	6.02E-02	24	12	Health	Schedule 3	0.50
Toluene	108-88-3	1.94E-02	AERMOD	1.20E+01	24	2,000	Odour	POI Guideline	0.60
Tetrachloroethene	127-18-4	3.61E-03	AERMOD	1.08E+00	24	360	Health	Schedule 3	0.30
Ethylbenzene	100-41-4	2.86E-03	AERMOD	3.01E+00	24	1,000	Health	Schedule 3	0.30
Total Xylenes	1330-20-7	7.50E-03	AERMOD	1.76E+00	24	730	Health	Schedule 3	0.24
1,2,4-Trimethylbenzene	95-63-6	2.11E-03	AERMOD	1.41E+00	24	220	Health	Schedule 3	0.03
1,1-Dichloroethane	75-34-3	1.36E-03	AERMOD	9.11E-03	24	165	Health	Schedule 3	0.01
Cyclohexane	110-82-7	1.03E-03	AERMOD	1.22E+01	24	6,100	Health	Schedule 3	0.20
Hydrogen Sulphide	7783-06-4	1.79E-02	AERMOD	1.20E-01	24	7	Health	Schedule 3	1.70
Hydrogen Sulpinde	7763-00-4	1./9E-02	AERMOD	5.34E-01	10-min	13	Odour	Schedule 3	4.10
Carbon Monoxide	630-08-0	4.53E+00	AERMOD	1.60E+03	0.5	6,000	Health	Schedule 3	26.70
Nitrogen Dioxide	10102-44-0	2.45E-01	AERMOD	1.36E+01	24	200	Health	Schedule 3	6.80
				7.16E+01	1	400	Health	Schedule 3	17.90
Carbon Dioxide	124-38-9	6.55E+02	AERMOD	1.73E+04	24	21,000	N/A	JSL	82.40
Sulphur Dioxide	7446-09-5	1.42E-01	AERMOD	9.58E+00	24	275	Health & Vegetation	Schedule 3	3.50
_	7770-07-3	1.721-01	ALKWOD	5.04E+01	1	690	Health & Vegetation	Schedule 3	7.30
Particulate Matter	NA	1.02E-01	AERMOD	4.54E+00	24	120	Visibility	Schedule 3	3.80

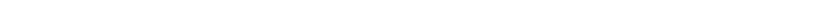
Notes on Column labeled Regulation Schedule #

3 refers to Standards in Schedule 3 of O.Reg.419/05

(G) refers to criteria identified as POI Guideline in the document "Summary of Standards and Guidelines to support Ontario Regulation 419: Air Pollution - Local Air Quality" dated February 2008

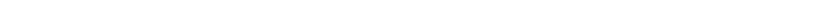
JSL refers to the Jurisdictional Screening Level in the document "Jurisdictional Screening Level (JSL) List, A Screening Tool for Ontario Regulaiton 419: Air Pollution - Local Air Quality" dated February 2008.

N/A means that no criteria is available in the documents "Summary of Standards and Guidelines to support Ontario Regulation 419: Air Pollution - Local Air Quality" dated February 2008 and "Jurisdictional Screening Level (JSL) List, A Screening Tool for Ontario Regulation 419: Air Pollution - Local Air Quality" dated February 2008 or that the predicted maximum POI concentration is above the JSL criteria. These contaminants have been submitted to ministry in a "Supporting Information for a Maximum Ground Level Concentration Acceptability Request Supplement to Application for Approval, EPA S.9" PIBS 4872e.



Appendix A

Supporting Calculations



APPENDIX A

SUPPORTING CALCULATIONS ACME LANDFILL SITE ANYTOWN, ONTARIO

USAGE RATES

The usage rates found on Table A.1 correspond to the operating conditions that would result in maximum emission rates in accordance with s.10 and s.11 of O. Reg. 419/05.

EMISSION CALCULATIONS

Source S-1: Enclosed Flare

Non-Methane Organic Compounds (NMOCs)

Methodology: Engineering Calculation

The evaluation of potential Landfill Gas (LFG) emissions from the Site has been conducted in accordance with the Ministry of Environment (MOE) guidance document entitled "Interim Guide to Estimate and Assess Landfill Air Impacts" (MOE, 1992). NMOCs are typically found in LFG in trace quantities and their concentrations vary from site to site. Composition data is not available for the Site, however P.E.S Waste Management Ltd. (P.E.S.) has considered the LFG data typical of that reported for similar landfills suitable for use in this Application. The average of the reported concentrations was used. The concentration data is summarized in Table A.2. The use of these concentrations is also supported when these concentrations are comparable to the default concentrations contained in US-EPA AP-42 Chapter 2.4.

The Scholl Canyon Model, adopted by the USEPA under New Source Performance Standards (NSPS) and Emission Guidelines for Municipal Solid Waste (MSW) landfills, was used to estimate the landfill gas produced at the Site. The NSPS model is a first order decay model. The model utilizes mathematical modelling with conservatively high default input parameters to estimate the non-methanogenic organic compound (NMOC) emissions from MSW landfills.

The model has several input parameters to estimate NMOC emissions including the decay constant (k = 0.04/year), the methane generation potential ($Lo_{CH4} = 125 \text{ m}^3/tonnes$), the NMOC concentration (C_{NMOC}), and waste tonnage.

The NMOC emissions from the Site were estimated assuming projected fill rates per year until Site closure in 2014, as shown in Table A.4. The MOE default parameters for the decay constant (k = 0.04/year) and the methane generation potential ($\text{Lo}_{\text{CH4}} = 125 \text{ m}^3/\text{tonnes}$) were also used in the model. Table A.5 summarizes the estimated LFG production of the landfill and shows that the estimated maximum LFG production for the Site occurs in the year 2015 where it reaches a peak rate of 21,988,018 cubic metres per year (m^3/yr). This production rate is considered conservative since the default parameters were developed for municipal landfills with moderate to high organic content. The production rate then continues to decrease as the Site moves into the declining stage of LFG production. Table A.4 presents the estimated VOC content of LFG relative to the LFG production rate and the VOC factors developed in Table A.3.

The landfill gas generated at the site is collected by the proposed landfill gas collection system. A collection efficiency of 80% is a reasonable estimate. Therefore, when the site is at its peak landfill gas production rate of 0.70 m³/s in the year 2015, the flare will be operating at a landfill gas feed rate of 0.56 m³/s and the balance of landfill gas will be emitted through the landfill cap. Never the less, the flare has a maximum landfill gas processing capacity of 1600 cfm (0.76m³/s). To be conservative and to satisfy s.11 paragraph 1 of O. Reg. 419/05, the emissions from the flare were estimated assuming 99.9 percent (%) treatment efficiency. Specifications provided by the flare manufacturer support that a 99.9% destruction efficiency for the system is achievable. A collection efficiency of 80% was assumed as a reasonable estimate for the landfill gas collection and control system (LGCCS) to account for the potential emissions from the flare as well as the landfill cap. The specifications are provided in Appendix B. A summary of the LFG constituent emissions is presented in Table A.5.

Sample Calculation:

Source S – 1: Vinyl Chloride

$$\dot{Q}_{VC} = Q_{Flare} \times C_{VC} \times 3.595E - 9 \times \frac{MW_{VC}}{MW_{hexane}} \times (1 - \eta_{dest})$$

Where:

 Q_{Flare} = maximum flare capacity (cdm)

 C_{VC} = concentration of vinyl chloride (ppm); MW_{VC} = molecular weight of vinyl chloride; MW_{hexane} = molecular weight of hexane; and

 η_{dest} = guaranteed minimum destruction efficiency of flare (%).

$$\begin{split} \dot{Q}_{VC} &= 1{,}600cfm \times \frac{m^3}{35.315ft^3} \times 7.34ppm \times 3.595E - 9 \times \frac{62.5}{86.18} \times \frac{1000L}{m^3} \times \frac{1000g}{kg} \times (1 - 0.999) \\ \dot{Q}_{VC} &= 0.867 \frac{g}{\min} \times (1 - 0.999) \times \frac{\min}{60s} \\ \dot{Q}_{VC} &= 1.45E - 5 \frac{g}{s} \end{split}$$

Data Quality: Average

Section 8.3.3 of the ESDM Procedure Document titled "Average Data Quality" Emission Estimating Techniques includes emission estimates derived from fundamental scientific and engineering principles.

Operating Condition, Individual Maximum Rates of Production:

The emission rate calculations are based on the peak LFG production for the Site and the flare operating at a collection efficiency of 80% and guaranteed minimum destruction efficiency (99.9%).

Source S-1: Enclosed Flare

Products of Combustion: Carbon Monoxide, Nitrogen Dioxide, & Particulate Matter

Methodology: Emission Factors

The emissions of LFG combustion products, such as carbon monoxide (CO), nitrogen oxides (NO_x), and particulate matter (PM), were estimated using the USEPA AP-42 Emission Factors for Municipal Solid Waste Landfills (Chapter 2.4, Table 2.4-4). The emission factors are given in units of kilograms (kg) per million dry standard cubic metres (dscm) of methane. The USEPA emission factors are 12000, 650, and 270 for CO, NO₂, and PM respectively. The emission factors for CO and NO₂ have a rating of "C" while PM has a rating of "D". The landfill gas composition is assumed to be 50% methane by volume. The emission calculations are summarized in Table A.5.

Sample Calculation:

Carbon Monoxide

$$\dot{Q}_{CO} = EF \times Q_{Flage} \times X_{CH4}$$

Where:

EF = USEPA AP-42 emission factor ($kg/10^6 \text{ m}^3 \text{ methane}$);

 $Q_{Flare} \quad = maximum \ capacity \ of \ the \ flare \ (cfm); \ and \ \\$

 X_{CH4} = methane content of LFG by volume (%).

$$\dot{Q}_{CO} = 12,000 \frac{kg}{10^6 m^3_{methane}} \times \left(1600 cfm \times \frac{m^3}{35.315 ft^3} \times 0.5 \frac{m^3_{methane}}{m^3 LFG}\right)$$

$$\dot{Q}_{CO} = 0.272 \frac{kg}{\min} \times 1000 \frac{g}{kg} \times \frac{\min}{60s}$$

$$\dot{Q}_{CO} = 4.53 \frac{g}{s}$$

Data Quality: Average and Marginal

Section 8.3.3 of the ESDM Procedure Document titled "Average Data Quality" Emission Estimating Techniques includes emission factor calculations for USEPA emission factors with a quality rating of "C" and Section 8.3.4 "Marginal Data Quality" for USEPA emission factors with a quality rating of "D" or "E".

Operating Condition, Individual Maximum Rates of Production:

The emission rate calculations are based on the capacity of the flare (1600 cfm).

Source S-1: Enclosed Flare

Products of Combustion: Sulphur Dioxide

Methodology: Engineering Calculation

The emission of sulphur dioxide from LFG combustion in the flare was estimated using the method outlined in USEPA AP-42 for Municipal Solid Waste Landfills (Chapter 2.4).

Sample Calculation:

$$\dot{Q}_{SO2} = Q_S \times 2.0$$

Where:

 Q_s = emissions of sulpur compounds (kg/yr);

$$\dot{Q}_{SO2} = 3.52E - 2\frac{g}{s} \times 2.0$$

$$\dot{Q}_{SO2} = 7.62 \times 10^{-2} \, \frac{g}{s}$$

Data Quality: Average

Section 8.3.3 of the ESDM Procedure Document titled "Average Data Quality" Emission Estimating Techniques includes engineering calculations derived from fundamental scientific and engineering principals.

Operating Condition, Individual Maximum Rates of Production:

The emission rate calculations are based on the peak LFG production for the Site and the flare operating at a collection efficiency of 80% and the guaranteed minimum destruction efficiency (99.9 percent).

Source S-1: Enclosed Flare

Products of Combustion: Carbon Dioxide

Methodology: Engineering Calculation

The emission of carbon dioxide from flare combustion was estimated using the method outlined in USEPA AP-42 for Municipal Solid Waste Landfills (Chapter 2.4). The emission calculation is provided in Table A.5.

Sample Calculation:

$$\dot{Q}_{CO2} = (Q_{CH4} \times 2.75)$$

Where:

 Q_{CO2} = uncontrolled emissions of CO_2 (kg/yr);

 Q_{CH4} = uncontrolled emissions of CH_4 (kg/yr); and

2.75 = ratio of the molecular weight of CO_2 to CH_4 .

$$\begin{split} \dot{Q}_{CO2} = & \left(1{,}600cfm \times \frac{m^3}{35.315ft^3} \times 0.5 \frac{m^3_{CH4}}{m^3 LFG} \times 0.66 \frac{kg}{m^3} \right) \times 2.75 \\ \dot{Q}_{CO2} = & \left(14.95 \frac{kg}{\min} \right) \times 1000 \frac{g}{kg} \times \frac{\min}{60s} \\ \dot{Q}_{CO2} = 6.85 \times 10^2 \frac{g}{s} \end{split}$$

Data Quality: Average

Section 8.3.3 of the ESDM Procedure Document titled "Above-Average Data Quality" Emission Estimating Techniques includes engineering calculations derived from fundamental scientific and engineering principals.

Operating Condition, Individual Maximum Rates of Production:

The emission rate calculations are based on the peak LFG production for the Site and the flare operating at a collection efficiency of 80% and the guaranteed minimum destruction efficiency (99.9 percent).

Source S-3: Landfill Area

Non-Methane Organic Compounds (NMOCs)

Methodology: Engineering Calculation

The evaluation of potential LFG emissions from the landfill has been conducted in accordance with the Ministry of Environment (MOE) guidance document entitled "Interim Guide to Estimate and Assess Landfill Air Impacts" (MOE, 1992). NMOCs are typically found in LFG in trace quantities and their concentrations vary from site to site. Site specific LFG composition data was obtained from sampling of the system header. The concentration data is summarized in Table A.2.

The Scholl Canyon Model was used to estimate the landfill gas produced at the Site, as discussed above for Source S-1. The NMOC emissions from the Site were estimated using the assumed projected fill rates and MOE default parameters as discussed above. Table A.4 presents the estimated VOC content of LFG.

The emissions from the landfill cap were estimated assuming 80% of the landfill gas is collected and combusted in the flare and that 20% of the landfill gas generated at the site is emitted through

the cap. A summary of the LFG constituent emissions from the landfill cap is presented in Table A.2.

Sample Calculation:

Vinyl Chloride

$$\dot{Q}_{VC} = Q_{LFG} \times C_{VC} \times 3.595E - 9 \times \frac{MW_{VC}}{MW_{hexane}} \times (1 - \eta_{coll})$$

Where:

 $\begin{array}{ll} Q_{LFG} & = peak \ land fill \ gas \ production \ (m^3/yr); \\ C_{VC} & = concentration \ of \ vinyl \ chloride \ (ppm); \\ MW_{VC} & = molecular \ weight \ of \ vinyl \ chloride; \\ MW_{hexane} & = molecular \ weight \ of \ hexane; \ and \\ \eta_{coll} & = system \ collection \ efficiency \ (\%). \end{array}$

$$\begin{split} \dot{Q}_{VC} &= 21,988,018 \frac{m^3}{yr} \times 7.34 \, ppm \times 3.595 E - 9 \times \frac{62.5}{86.18} \times (1 - 0.8) \\ \dot{Q}_{VC} &= 0.0842 \frac{g}{yr} \times \frac{yr}{365 day} \times \frac{day}{24 hour} \times \frac{hour}{3600s} \\ \dot{Q}_{VC} &= 2.67 \times 10^{-3} \frac{g}{s} \end{split}$$

Data Quality: Average

Section 8.3.2 of the ESDM Procedure Document titled "Average Data Quality" Emission Estimating Techniques includes emission estimates derived from fundamental scientific and engineering principles.

Operating Condition, Individual Maximum Rates of Production:

The emission rate calculations are based on the peak LFG production for the Site, assuming 100 percent of the LFG that is not collected is emitted through the cap.

Table A.1

Product Usage Rates Acme Landfill Site Anytown, Ontario

Source Designation	Description	Usage Rate					
S-1	Landfill Gas Enclosed Flare	0.70	m ³ per second of landfill gas				
S-3	Landfill Area	0.14	m ³ per second of landfill gas				

Table A.2

Landfill Gas Composition Data
Acme Landfill Site
Anytown, Ontario

Parameter	Molecular Weight	Average Concentration (ppm)(1)	VOC Factor (kg/L)
Vinyl Chloride	62.5	7.34	1.91E-08
Dichloromethane	84.93	14.30	5.07E-08
Hexane	86.18	6.57	2.36E-08
cis-1,2-Dichloroethene	96.95	2.84	1.15E-08
Benzene	78.11	2.00	6.52E-09
Trichloroethene	131.39	2.82	1.55E-08
Toluene	92.15	36.00	1.38E-07
Tetrachlorothene	165.83	3.73	2.58E-08
Ethylbenzene	106.1	4.61	2.04E-08
Total Xylenes	106.16	12.10	5.36E-08
1,2,4-Trimethylbenzene	120.19	3.00	1.50E-08
1,1-Dichloroethane	98.97	2.35	9.70E-09
Cyclohexane	84.16	2.10	7.37E-09
NMOC (1)	86.18	454	1.63E-06
Hydrogen Sulphide	34.08	35.5	1.28E-07

Notes:

NMOC -nonmethane organic carbon - based on Hexane as the average NMOC

⁽¹⁾ The concentrations are based on the reported average concentrations in landfill gas from several landfills.

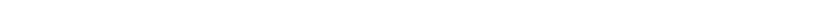


Table A.3

Dispersion Modelling Input Summary Table Acme Landfill Site Anytown, Ontario

Relevant Section of the Regulation	Section Title	Description of How the Approved Dispersion Model was Used
Section 8	Negligible Sources	Sources and contaminants that were considered negligible were explicitly identified, and therefore were not modelled, in accordance with s.8 of O. Reg. 419. See Table 1 - Sources and Contaminants Identification Table for more information.
Section 9	Same Structure Contamination	Not applicable as the ACME Landfill is the only tenant occupying the site, and does not have a child care facility, health care facility, senior's residence, long-term care facility or an educational facility located at the Site.
Section 10	Operating Conditions	All equipment was assumed to be operating at the maximum production rates at the same time. See Section 4.1 and Appendix A of the ESDM Report.
Section 11	Source of Contaminant Emission Rate	The emission rate for each significant contaminant emitted from a significant source was estimated, the methodology for the calculation is documented in Table 2 - Source Summary Table. See Section 4.1 and Section 4.2 and Appendix A of the ESDM Report for more information.
Section 12	Combined Effect of Assumptions for Operating Conditions and Emission Rates	The operating conditions were estimated in accordance with s.10(1) and 1 and S.11 (1) 1 of O. Reg. 419 and are therefore considered to result in the highest concentrations at POI that the Facility is capable of for the contaminants emitted. See Section 4.1 and Section 4.2 of the ESDM Report.
Section 13	Meteorological Conditions	MOE Meteorological data obtained from Anytown, Ontario was used.
Section 14	Area of Modelling Coverage	Completed in accordance with Ministry of Ontario Modelling Guidance
Section 15	Stack Height	Documented in accordance with Ministry of Ontario Modelling Guidance
Section 16	Terrain Data	MOE available Terrain Data sets were used.
Section 17	Averaging Periods	The Averaging Periods as summarized on Table 2 were used.

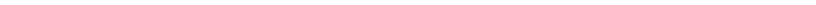


Table A.4

Esitmated VOC Emissions From Landfill Gas Production Acme Landfill Site Anytown, Ontario

0.04 year⁻¹ Landfill gas production rate, k =Landming as production rate, k =

Gas Production potential, Lo =

lag time before start of gas production, lag =

year landfill opened

methane (by volume)

carbon dioxide (by volume) 250 m³/tonnes 1 years 1990 50 % 50 % methane (density)

0.66 kg/m³ carbon dioxide (density)
Percentage of inert material
VOC factors
(Boldface number indicate a required input) 1.80 kg/m³

(Dolui	ace numbe	i indicate a i	equired input)																		
Year	Year	Annual Tonnage	Annual Decomposable Tonnage	Production	Annual Methane Production	Annual CO2 Production	Annual NMOC Production	Annual Vinyl Chloride Production	Annual DichloroCH4 Production	Annual Hexane Production	Annual cis-1,2-DCE Production	Annual Benzene Production	Annual TCE Production	Annual Toluene Production	Annual PCE Production	Annual Ethylbenzene Production	Annual Xylenes Production	Annual 1,2,4-TMB Production	Annual 1,1-DCE Production	Annual Cyclohexane Production	Annual H2S Production
	Number	(Tonnes)	(Tonnes)	(m^3/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)
1990	1	65,000	65,000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1991	2	68,000	68,000	650,000	214,500	584,610	1,061	12	33	15	7	4	10	90	17	13	35	10	6	5	83
1992	3	71,000	71,000	1,304,513	430,489	1,173,279	2,129	25	66	31	15	9	20	181	34	27	70	20	13	10	166
1993	4	75,000	75,000	1,963,363	647,910	1,765,848	3,204	38	99	46	23	13	30	272	51	40	105	30	19	14	251
1994	5	79,000	79,000	2,636,378	870,005	2,371,158	4,303	50	134	62	30	17	41	365	68	54	141	40	26	19	336
1995	6	83,000	83,000	3,323,004	1,096,591	2,988,710	5,424	64	168	78	38	22	51	460	86	68	178	50	32	24	424
1996	7	87,000	87,000	4,022,707	1,327,493	3,618,023	6,566	77	204	95	46	26	62	557	104	82	216	61	39	30	513
1997	8	91,000	91,000	4,734,974	1,562,541	4,258,636	7,728	91	240	112	54	31	73	655	122	97	254	71	46	35	604
1998	9	96,000	96,000	5,459,314	1,801,573	4,910,107	8,910	104	277	129	63	36	84	755	141	111	293	82	53	40	697
1999	10	101,000	101,000	6,205,251	2,047,733	5,581,002	10,128	119	314	147	71	40	96	859	160	127	333	93	60	46	792
2000	11	106,000	106,000	6,971,940	2,300,740	6,270,562	11,379	133	353	165	80	45	108	965	180	142	374	105	68	51	890
2001	12	111,000	111,000	7,758,566	2,560,327	6,978,054	12,663	148	393	183	89	51	120	1,074	200	158	416	117	75	57	990
2002	13	117,000	117,000	8,564,348	2,826,235	7,702,775	13,978	164	434	202	98	56	132	1,185	221	175	459	129	83	63	1,093
2003	14	123,000	123,000	9,398,535	3,101,517	8,453,042	15,340	180	476	222	108	61	145	1,301	243	192	504	141	91	69	1,199
2004	15	129,000	129,000	10,260,013	3,385,804	9,227,856	16,746	196	520	242	118	67	159	1,420	265	209	550	154	100	76	1,309
2005	16	135,000	135,000	11,147,712	3,678,745	10,026,252	18,195	213	565	263	128	73	172	1,543	288	227	597	168	108	82	1,423
2006	17	142,000	142,000	12,060,604	3,979,999	10,847,307	19,684	231	611	285	139	79	186	1,669	311	246	646	181	117	89	1,539
2007	18	149,000	149,000	13,007,701	4,292,541	11,699,126	21,230	249	659	307	149	85	201	1,800	336	265	697	196	126	96	1,660
2008	19	156,000 164,000	156,000	13,987,662	4,615,928	12,580,503 13,490,279	22,830	268	709	330	161	91 98	216	1,936	361	285	750	210 226	136 146	103	1,785
2009	20		164,000 172,000	14,999,198	4,949,735		24,481 26,197	287 307	760	354 379	172	105	232	2,076	387	306 328	804	241		111	1,914
2010 2011	21	172,000 181,000	181,000	16,051,072 17,141,700	5,296,854 5,656,761	14,436,334 15,417,245	26,197	328	813 868	405	184 197	112	248 265	2,221 2,372	414 442	328 350	860 919	258	156 166	118 126	2,048 2,188
	22	190,000					29,835			432								258 275	177		2,333
2012			190,000	18,279,564	6,032,256	16,440,640		350	926		210	119	283	2,530	472	373	980			135	
2013	24	200,000	200,000	19,462,810	6,422,727	17,504,851	31,766	372	986	460	224	127	301	2,693	502	397	1,043	293	189	143	2,484
2014	25	210,000	210,000	20,699,664	6,830,889	18,617,278 19,776,023	33,785 35,887	396 421	1,049 1.114	489 519	238 253	135 143	320 340	2,865 3,043	534 567	422 449	1,109 1,178	311 331	201	153 162	2,642 2,806
2015	20	U	0	21,988,018	7,256,046	19,770,023	33,887	421	1,114	519	233	143	540	5,045	307	449	1,1/8	331	213	102	2,000

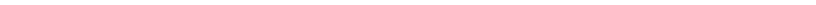
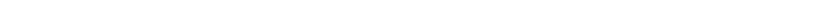


Table A.5 Summary of Estimated Emissions Acme Landfill Site Anytown, Ontario

Chemical	CAS No.	Land Emis		Flare Emissions		
	-	(kg/yr)	(g/s)	(kg/yr)(1)	(g/s)	
Vinyl Chloride	75-01-4	84.16	2.67E-03	0.34	1.07E-05	
Dichloromethane	75-09-2	222.80	7.06E-03	0.89	2.83E-05	
Hexane	110-54-3	103.87	3.29E-03	0.42	1.32E-05	
cis-1,2-Dichloroethene	156-59-2	50.51	1.60E-03	0.20	6.41E-06	
Benzene	71-43-2	28.66	9.09E-04	0.11	3.63E-06	
Trichloroethene	79-01-6	67.97	2.16E-03	0.27	8.62E-06	
Toluene	108-88-3	608.56	1.93E-02	2.43	7.72E-05	
Tetrachlorothene	127-18-4	113.47	3.60E-03	0.45	1.44E-05	
Ethylbenzene	100-41-4	89.73	2.85E-03	0.36	1.14E-05	
Total Xylenes	1330-20-7	235.64	7.47E-03	0.94	2.99E-05	
1,2,4-Trimethylbenzene	95-63-6	66.15	2.10E-03	0.26	8.39E-06	
1,1-Dichloroethane	75-34-3	42.67	1.35E-03	0.17	5.41E-06	
Cyclohexane	110-82-7	32.42	1.03E-03	0.13	4.11E-06	
Hydrogen Sulphide	7783-06-4	561.23	1.78E-02	2.24	7.12E-05	
Methane	74-82-8	1,451,209	4.60E+01	5,805	1.84E-01	
Carbon Monoxide	630-08-0			105,437 (3)	3.34E+00	
Nitrogen Dioxide	10102-44-0			5,711 (3)	1.81E-01	
Carbon Dioxide	124-38-9	3,955,205	1.25E+02	16,713,075 (2)	5.30E+02	
Sulphur Dioxide	7446-09-5			4,490 (4)	1.42E-01	
Particulate Matter	NA			2,372 (3)	7.52E-02	

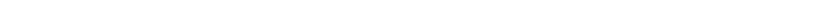
Notes:

- (1) Estimated using the USEPA AP-42 Chapter 2.4-Municipal Solid Waste Landfills.
 (2) Estimated CO2 emissions calculated from CO2 content of LFG and the complete combustion of CH4 (AP-42 Chapter 2.4 Municipal Solid Waste Landfills).
 (3) Calculated from total mass of methane, a 99.9% treatment efficiency and a 80% collection efficiency.
 (4) Calculated assuming a complete conversion of H2S to SO2, and a treatment efficiency of 99.9%.



Appendix B

Landfill Gas Flare Specifications And Retention Time Calculations



SAMPLE MANUFACTURER FLARE SPECIFICATIONS

Company Name: ೨۰-೨%೨೯-%೨೯ ೨೯-೨%೨೯-11 △ ՀՀՀ 🗖

Company Address:

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Telephone: a • • ₫ 💇 • 🖈 ₫ 🗆 🗣

Equipment Specifications:

P=+S□X□ ○MU>◆●S+X□=• BP®D·OMU>AXM OM◆□M• BOED \$\text{p=+S□X□ | \$\text{p=+ OMO} \text{p=+ OMO} \text{p=+ OMO} \text{p=0}

\\(\) OMS \\ \) OM \\(\) OM \\(



53400-10	J. Worker	A. Reviewer
Project No:	Designed By:	Checked By:
Application for Certificate of A	pproval (Air and Noise)	
Project Name - Title:		
July 31, 2008	001	1 of 1
Date:	Calc Ref No :	Page No.

Purpose

To demonstrate that the retention time of the landfill gas in the flare is adequate to ensure a 99.99% destruction efficiency

Calculation Assumptions

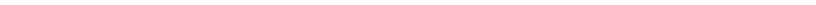
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Retention Time Calculations

Appendix C

Supporting Information For Assessment Of Negligibility



APPENDIX C

SUPPORTING INFORMATION FOR ASSESSMENT OF NEGLIGIBILITY ACME LANDFILL SITE

Sources and contaminants were screened for negligibility using the following screening protocols listed in the ESDM Procedure Document:

- Fugitive dust from on-site roadways and storage piles (Section 7.4); and
- Sources Listed on Table B-3: Specific Examples of Sources that Emit Contaminants in Negligible Amounts (Section 7.2.1.).

The results of the screening are discussed in greater detail in the following text.

Fugitive Road Dust:

The Site is listed in Table 7-3 of Section 7.4 of the ESDM Procedure Document. The Site has implemented a best management practices plan and therefore, the emissions from the on-site roadways and storage piles have been considered insignificant as per Section 7.4.1 of the ESDM Procedure Document. A copy of the Site's fugitive dust management plan is provided in Appendix E.

Sources Listed on Table B-3:

Table B-3 of the ESDM Procedure Document lists sources that can be considered to be insignificant. Source S-2 is considered insignificant, as it is exempt from obtaining a C of A per Ontario Regulation 524/98. Source S-2 is a heater for the maintenance building and is the only fuel burning equipment at the Site that is used to provide comfort heating. It is fired on natural gas only and has a maximum heat input rating of less than 1.58 million kilojoules per hour.

Identifying Significant Contaminants Using an Emission Threshold

Some non-methane organic compounds that are included in US-EPA AP-42 chapter 2.4 are screened for their significance using the emission threshold approach. Section 7.1.2 of the ESDM Procedure Document states that contaminants that are emitted from a specific facility may be identified as negligible when they are below emissions thresholds that are developed using the following formula:

Emission Threshold (g/s) = $0.5 \times MOE POI Limit (ug/m^3)$ Dispersion Factor (ug/m³ per g/s emission) Table B.1 in the ESDM Procedure Document lists appropriate Dispersion Factors to be used for screening out contaminants in negligible amounts. The shortest distance from the emission source to the property line was determined to be approximately 80 metres, using the scaled site plan presented as Figure 3 – Site Layout Plan. The corresponding 1-hr rural dispersion factor provided in Table B-1 is $5{,}100 \, \text{ug/m}^3$.

To convert the rural dispersion factor to a 24-hr averaging period, the following calculation was performed, using the averaging time conversion factor provided in Table 4.1 of the Air Dispersion Modeling Guideline for Ontario:

$$C_{24} = C_1 \times 0.4$$

$$C_{24} = 5,100 \frac{ug \cdot s}{m^3 \cdot g} \times 0.4$$

$$C_{24} = 2040 \frac{ug \cdot g}{m^3 \cdot s}$$

The converted rural dispersion factor was then incorporated into the emission threshold concentration calculations.

Sample Calculation: Assessment of Significance of Dichlorodifluoromethane (CAS # 75-71-8)

$$\dot{Q} = \frac{0.5 \times 500,000 \frac{ug}{m^3}}{2040 \frac{ug \cdot g}{m^3 \cdot s}}$$
$$\dot{Q}_{VC} = 1.23 \times 10^2 \frac{g}{s}$$

The maximum calculated emission rate of dichlorodifluoromethane, as presented on Table C.1, is 1.23E+2 g/s. Because the emission rate does not exceed the calculated emission threshold, the emission of dichlorodifluoromethane is considered insignificant.

All facility emissions of contaminants with a MOE POI limit were assessed against the appropriate emission threshold. Of all of the LFG constituents, 14 were considered to be emitted in significant amounts as summarized on Table C.1. The significant contaminants were included in Table 4 – Emission Summary Table.

De-Minimus Calculations

Appendix B of the ESDM Procedure Document, entitled "Supporting Information for the Assessment of the Significance of Contaminants and Sources" provides some direction on identifying insignificant emissions of a contaminant, which is applied here for some non-methane organic compounds listed in US-EPA AP-42 Chapter 2.4.

Specifically, Step 2 of Table B-2A entitled "Contaminants Not Listed in the MOE Document Summary of Point of Impingement Guidelines, and Ambient Air Quality Criteria (AAQC) that can be Deemed Insignificant in a Specific Situation" indicates that if a substance is not listed in Table B-2B entitled "List of Contaminants Excluded from de-minimus level" it can be considered insignificant if its predicted impact is below $0.3~\mu g/m^3$ (0.5-hr averaging period).

If a substance is listed in Table B-2B, it can be considered insignificant if its predicted impact is below $0.03 \,\mu\text{g/m}^3$ (0.5-hr averaging period).

Several of the contaminants with no corresponding MOE POI Limit were deemed to be insignificant using this approach. Table C.1 provides a summary of this assessment.

Site-Specific Assessments

An odour assessment was conducted for the Site as part of the original Design and Operations Report for the Acme Landfill Site dated January 1990 (Site D & O Report), which forms part of the supporting documentation for the Site C of A (Waste). The installation of the Landfill Gas Collection and Control System (LGCCS) will decrease the Site's odour emissions through collection of the landfill gas and destruction of the odourous contaminants by the flare. The proposed LGCCS will not contribute to the Site's baseline odour emissions, as approved by the MOE through review of the D & O Report and C of A (Waste) issuance. There have been no odour complaints against the Site as confirmed by MOE Anytown District Office, therefore odour is considered to be an insignificant contaminant for the purposes of this Application.

TABLE C.1

Contaminants Emitted in Negligible Amounts Acme Landfill Site Anytown, Ontario

Source ID	Process	Contaminant	CAS#	Maximum Emission Rate (g/s)	MOE Reg 419 Standard (μg/m3)	Averaging Period (hr)	Regulation Schedule #	Emission Threshold (3) (g/s)	Concentration Threshold (4) (µg/m3)	Maximum Concentation (μg/m3)	Significant? (Y/N)
S-3	Landfill Area	dichlorodifluoromethane	75-71-8	5.52E-02	500,000	24	G	1.23E+02	NA	NA	N
		Chlorodifluoromethane	75-45-6	3.27E-03	350,000	24	G	8.58E+01	NA	NA	N
		1,1,2,2-tetrachloroethane	79-34-5	5.42E-03	NA	NA	NA	NA	0.1	1.11E+01	Y
		Chloromethane	74-87-3	1.78E-03	3,200	24	URT	7.84E-01	NA	NA	N
		Vinyl Chloride	75-01-4	1.33E-02	1	24	3	2.45E-04	NA	NA	Y
		1,2-dichloroethane	107-06-2	1.18E-03	2	24	3	4.90E-04	NA	NA	Y
		Chloroethane	75-00-3	2.35E-03	5,600	24	3	1.37E+00	NA	NA	N
		Trichlorofluoromethane	75-69-4	3.04E-03	6,000	24	G	1.47E+00	NA	NA	N
		Dichlorofluoromethane	75-43-4	7.84E-03	NA	NA	NA	NA	0.1	1.60E+01	Y
		1,2-dichloropropane	78-87-5	5.92E-04	2,400	24	G	5.88E-01	NA	NA	N
		1,1-Dichloroethylene	75-35-4	5.64E-04	10	24	3	2.45E-03	NA	NA	N
		Acrylonitrile	107-13-1	9.77E-03	0.6	24	3	1.47E-04	NA	NA	Y
		Dichloromethane	75-09-2	3.53E-02	220	24	3	5.39E-02	NA	NA	N
		Bromodichloromethane	75-27-4	1.49E-02	NA	NA	NA	NA	0.1	3.04E+01	Y
		1,1-Dichloroethane	75-34-3	6.76E-03	165	24	3	4.04E-02	NA	NA	N
		Butane	106-97-8	8.50E-03	7,600 (2)	24	JSL	1.86E+00	NA	NA	N
		1,1,1-Trichloroethane	71-55-6	1.86E-03	1,000	24	3	2.45E-01	NA	NA	N
		Trichloroethylene	79-01-6	1.08E-02	12	24	3	2.94E-03	NA	NA	Y
		Tetrachloroethylene	127-18-4	1.80E-02	360	24	3	8.82E-02	NA	NA	N
		•			3,500	1	Ğ	3.43E-01	NA	NA	N
		Chlorobenzene	108-90-7	8.18E-04	4,500	10-Min	G	2.67E-01	NA NA	NA	N
		Carbon tetrachloride	56-23-5	1.79E-05	2.4	24	3	5.88E-04	NA	NA	N
		Carbonyl sulphide	463-58-1	8.56E-04	3(2)	24	JSL	7.84E-04	NA NA	NA	Y
		1,4-Dichlorobenzene	106-46-7	8.98E-04	95	24	3	2.33E-02	NA	NA	N
		Propane	74-98-6	1.42E-02	7,200 (2)	24	JSL	1.76E+00	NA NA	NA	N
		Pentane	109-66-0	6.90E-03	4,200 (2)	24	JSL	1.03E+00	NA NA	NA	N
		Ethanol	64-17-5	3.65E-02	19,000	1	G	1.86E+00	NA NA	NA	N
		Acetone	67-64-1	1.18E-02	11,880	24	3	2.91E+00	NA NA	NA	N
		Carbon Disulfide	75-15-0	1.28E-03	330	24	Ğ	8.09E-02	NA NA	NA	N
		Isopropyl Alcohol	67-63-0	8.76E-02	7,300	24	3	1.79E+00	NA NA	NA	N
		Hexane	110-54-3	1.65E-02	7,500	24	3	1.84E+00	NA NA	NA	N
		MEK/2-Butanone	78-93-3	1.49E-02	1,000	24	3	2.45E-01	NA NA	NA	N
		4-Methyl-2-Pentanone/MIBK	108-10-1	5.45E-03	1,200	24	3	2.94E-01	NA NA	NA	N
		Toluene	108-88-3	1.05E-01	2,000	24	Ğ	4.90E-01	NA NA	NA	N
		Ethyl Benzene	100-41-4	1.42E-02	1,000	24	3	2.45E-01	NA NA	NA	N
		Chloroform	67-66-3	1.04E-04	1,000	24	3	2.45E-04	NA NA	NA	N
		dimethyl sulfide	75-18-3	1.41E-02	30	10-min	Ğ	1.78E-03	NA NA	NA	Y
		ethane	74-84-0	7.78E-01	4,800 (2)	24	JSL	1.18E+00	NA NA	NA NA	N
		ethyl mercaptan	75-08-1	4.12E-03	NA	NA	NA	NA	0.1	8.41E+00	Y
		ethylene dibromide	106-93-4	5.46E-06	3	24	G	7.35E-04	NA	NA	N
		caryiene dibionnide			7	24	3	1.72E-03	NA NA	NA NA	Y
		hydrogen sulfide	7783-06-4	3.52E-02	13	24 10-min	3	7.72E-03	NA NA	NA NA	Y
		mercury	7439-97-6	1.70E-06	2	24	3	4.90E-04	NA NA	NA NA	N N
		methyl mercaptan	74-93-1	3.48E-03	NA	NA	NA	4.90E-04 NA	0.1	7.11E+00	Y
		t-1,2-dichloroethene	540-59-0	8.01E-03	105	24	G	2.57E-02	NA	NA	N N
		xylenes	1330-20-7	3.74E-02	730	24	3	1.79E-01	NA NA	NA NA	N N
		Benzene	71-43-2	4.34E-03	NA	NA	NA	1.79E-01 NA	0.01	8.85E+00	Y
		Denzelle	11-43-2	4.5415-05	11/1	1973	11/7	1474	0.01	3.03E±00	1

Notes:
1 - refers to Standards in Schedule 1 of O. Reg. 419/05

NA - No Available Criteria

G - Guideline

JSL - Jurisdictional Screening Level

- (1) Estimated maximum emission rates obtained from Appendix A, Table A.2.
- (2) From the MOE documents "Summary of Standards and Guidelines to Support Ontario Regulation 419: Air Pollution Local Air Quality" dated February 2008, and "Jurisdictional Screening Level (JSL) List -A Screening Tool for Ontario Regulation 419: Air Pollution - Local Air Quality".
- (3) Emission Threshold based on the MOE Reg. 419 standard and the Rural Dispersion factor from Table B-1, converted to a 24-hr and 10-min averaging period as outlined in section 7.1.2 of the MOE document "Procedure for Preparing an ESDM Report, Version 2.0" dated July 2005. The converted Urban Dispersion Factors are 2040 ug/m3 for 24-hr and 8423 ug/m3 for 10-min.
- (4) Contaminant has no MOE standard and concentration threshold was used as defined in Table B-2A of the MOE document "Procedure for Preparing an ESDM Report, Version 2.0", dated July 2005.

Appendix D

Dispersion Modelling Data

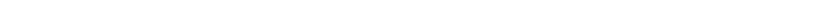


Table D.1

Aermod Input Modelling Parameters
Acme Landfill Site
Anytown, Ontario

Table D.1A: Point Sources

Source		Source	UTM Co	ordinates	Release	Exit	Exit	Exit	Exit	Contaminant	Modelled
Identifier	Description	Type	X	Y	Height	Diameter	Flow Rate	Velocity	Temperature		Emission Rate
			(m)	(m)	(m)	(m)	(m^3/s)	(m/s)	(K)		(g/s)
S-1	Landfill Gas Enclosed Flare	point	601152	4915499	9	3	0.76	0.00	875.00	Vinyl Chloride	1.07E-05
		•								Dichloromethane	2.83E-05
										Hexane	1.32E-05
										cis-1,2-Dichloroethene	6.41E-06
										Benzene	3.63E-06
										Trichloroethene	8.62E-06
										Toluene	7.72E-05
										Tetrachlorothene	1.44E-05
										Ethylbenzene	1.14E-05
										Total Xylenes	2.99E-05
										1,2,4-Trimethylbenzene	8.39E-06
										1,1-Dichloroethane	5.41E-06
										Cyclohexane	4.11E-06
										Hydrogen Sulphide	7.12E-05
										Carbon Monoxide	3.34E+00
										Nitrogen Dioxide	1.81E-01
										Carbon Dioxide	5.30E+02
										Sulphur Dioxide	1.42E-01
										Particulate Matter	7.52E-02

Table D.1B: Area Sources

Source		Source	UTM Co	ordinates	Release	Total	Number	Lengtl	h of Side	Contaminant	Modelled
Identifier	Description	Type	X	Y	Height	Area	of Sources	X-Side	Y-Side		Emission Rate
			(m)	(m)	(m)	(m^2)		(m)	(m)		(g/s)
S-3	Landfill Area	rectangular	600713	4915507	15	233,243	1	488	478	Vinyl Chloride	2.67E-03
		area								Dichloromethane	7.06E-03
										Hexane	3.29E-03
										cis-1,2-Dichloroethene	1.60E-03
										Benzene	9.09E-04
										Trichloroethene	2.16E-03
										Toluene	1.93E-02
										Tetrachloroethene	3.60E-03
										Ethylbenzene	2.85E-03
										Total Xylenes	7.47E-03
										1,2,4-Trimethylbenzene	2.10E-03
										1,1-Dichloroethane	1.35E-03
										Cyclohexane	1.03E-03
										Hydrogen Sulphide	1.78E-02
										Carbon Dioxide	1.25E+02

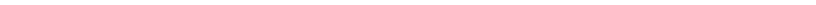
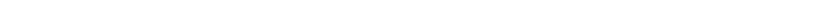
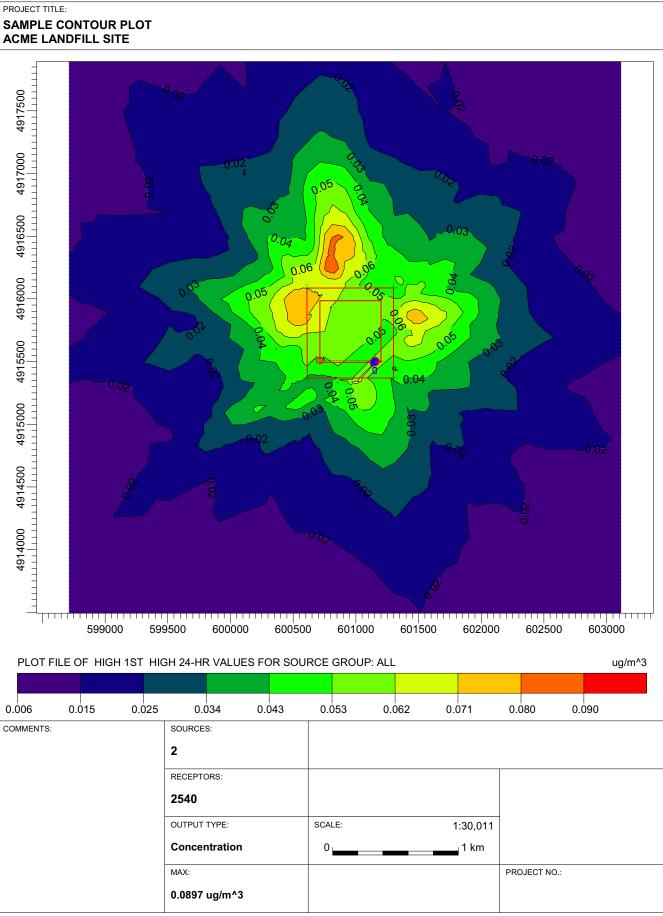
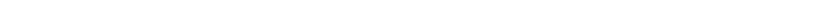


Table D.1 Aermod Input Modelling Parameters Acme Landfill Site Anytown, Ontario

Contaminant	Source		Source	UTM Cod	ordinates	Release	Exit	Exit	Exit	Exit	Length	of Side	Modelled
	Identifier	Description	Type	X	Y	Height	Diameter	Flow Rate	Velocity	Temperature	X-Side	Y-Side	Emission Rate
		•		(m)	(m)	(m)	(m)	(m3/s)	(m/s)	(K)	(m)	(m)	(g/s)
	S-1	Landfill Gas Enclosed Flare	point	601152	4915499	9	3	0.76	0.11	875.00	N/A	N/A	1.07E-05
Vinyl Chloride	S-3	Landfill Area	rectangular area	600713	4915507	15	N/A	N/A	N/A	N/A	488	478	2.67E-03
D:-1-1	S-1	Landfill Gas Enclosed Flare	point	601152	4915499	9	3	0.76	0.11	875.00	N/A	N/A	2.83E-05
Dichloromethane	S-3	Landfill Area	rectangular area	600713	4915507	15	N/A	N/A	N/A	N/A	488	478	7.06E-03
11	S-1	Landfill Gas Enclosed Flare	point	601152	4915499	9	3	0.76	0.11	875.00	N/A	N/A	1.32E-05
Hexane	S-3	Landfill Area	rectangular area	600713	4915507	15	N/A	N/A	N/A	N/A	488	478	3.29E-03
cis-1.2-Dichloroethene	S-1	Landfill Gas Enclosed Flare	point	601152	4915499	9	3	0.76	0.11	875.00	N/A	N/A	6.41E-06
cis-1,2-Dichioroethene	S-3	Landfill Area	rectangular area	600713	4915507	15	N/A	N/A	N/A	N/A	488	478	1.60E-03
Dangana	S-1	Landfill Gas Enclosed Flare	point	601152	4915499	9	3	0.76	0.11	875.00	N/A	N/A	3.63E-06
Benzene	S-3	Landfill Area	rectangular area	600713	4915507	15	N/A	N/A	N/A	N/A	488	478	9.09E-04
Trichloroethene	S-1	Landfill Gas Enclosed Flare	point	601152	4915499	9	3	0.76	0.11	875.00	N/A	N/A	8.62E-06
Trichioroethene	S-3	Landfill Area	rectangular area	600713	4915507	15	N/A	N/A	N/A	N/A	488	478	2.16E-03
Toluene	S-1	Landfill Gas Enclosed Flare	point	601152	4915499	9	3	0.76	0.11	875.00	N/A	N/A	7.72E-05
Toluelle	S-3	Landfill Area	rectangular area	600713	4915507	15	N/A	N/A	N/A	N/A	488	478	1.93E-02
Tetrachlorothene	S-1	Landfill Gas Enclosed Flare	point	601152	4915499	9	3	0.76	0.11	875.00	N/A	N/A	1.44E-05
Tetracinoromene	S-3	Landfill Area	rectangular area	600713	4915507	15	N/A	N/A	N/A	N/A	488	478	3.60E-03
Ethylbenzene	S-1	Landfill Gas Enclosed Flare	point	601152	4915499	9	3	0.76	0.11	875.00	N/A	N/A	1.14E-05
Eurytoenzene	S-3	Landfill Area	rectangular area	600713	4915507	15	N/A	N/A	N/A	N/A	488	478	2.85E-03
Total Xylenes	S-1	Landfill Gas Enclosed Flare	point	601152	4915499	9	3	0.76	0.11	875.00	N/A	N/A	2.99E-05
Total Aylenes	S-3	Landfill Area	rectangular area	600713	4915507	15	N/A	N/A	N/A	N/A	488	478	7.47E-03
1,2,4-Trimethylbenzene	S-1	Landfill Gas Enclosed Flare	point	601152	4915499	9	3	0.76	0.11	875.00	N/A	N/A	8.39E-06
1,2,4-11illettiyibelizelle	S-3	Landfill Area	rectangular area	600713	4915507	15	N/A	N/A	N/A	N/A	488	478	2.10E-03
1.1-Dichloroethane	S-1	Landfill Gas Enclosed Flare	point	601152	4915499	9	3	0.76	0.11	875.00	N/A	N/A	5.41E-06
1,1-Dichioroculane	S-3	Landfill Area	rectangular area	600713	4915507	15	N/A	N/A	N/A	N/A	488	478	1.35E-03
Cyclohexane	S-1	Landfill Gas Enclosed Flare	point	601152	4915499	9	3	0.76	0.11	875.00	N/A	N/A	4.11E-06
Cyclonexane	S-3	Landfill Area	rectangular area	600713	4915507	15	N/A	N/A	N/A	N/A	488	478	1.03E-03
Hydrogen Sulphide	S-1	Landfill Gas Enclosed Flare	point	601152	4915499	9	3	0.76	0.11	875.00	N/A	N/A	7.12E-05
nydrogen Sulpinde	S-3	Landfill Area	rectangular area	600713	4915507	15	N/A	N/A	N/A	N/A	488	478	1.78E-02
Carbon Monoxide	S-1	Landfill Gas Enclosed Flare	point	601152	4915499	9	3	0.76	0.11	875.00	N/A	N/A	3.34E+00
Nitrogen Dioxide	S-1	Landfill Gas Enclosed Flare	point	601152	4915499	9	3	0.76	0.11	875.00	N/A	N/A	1.81E-01
Carbon Dioxide	S-1	Landfill Gas Enclosed Flare	point	601152	4915499	9	3	0.76	0.11	875.00	N/A	N/A	5.30E+02
Carbon Dioxide	S-3	Landfill Area	rectangular area	600713	4915507	15	N/A	N/A	N/A	N/A	488	478	1.25E+02
Sulphur Dioxide	S-1	Landfill Gas Enclosed Flare	point	601152	4915499	9	3	0.76	0.11	875.00	N/A	N/A	1.42E-01
Particulate Matter	S-1	Landfill Gas Enclosed Flare	point	601152	4915499	9	3	0.76	0.11	875.00	N/A	N/A	7.52E-02







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** ISC-AERMOD View Ver. 5.7.0
** Lakes Environmental Software Inc.
** Date:
** File:
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** ISC-AERMOD VIEW VER. 5.7.0
** LAKES ENVIRONMENTAL SOFTWARE INC.
** DATE: ** FILE: **

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** AERMOD CONTROL PATHWAY
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** AERMOD SOURCE PATHWAY

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** AERMOD OUTPUT PATHWAY

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*** AERMOD - VERSION 07026 *** ***

**MODELOPTs:

PAGE 6

CONC DFAULT ELEV

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DFAULT ELEV

SELECTED FOR PROCESSING ***

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AND END

DATE: 9999 99 99 24

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH

FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54, 3.09, 5.14,

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**MODELOPTs: PAGE 36

CONC DFAULT ELEV

*** UP TO THE FIRST 24 HOURS OF

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Name: BUFFALO

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*MODELOPTs: PAGE 37

CONC DFAULT ELEV

*** THE ANNUAL AVERA AVERAGED OVER 5 YEARS FOR SOURCE GRO	OUP: ALL ***	VALUES
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*** AERMOD - VERSION 07026 ***

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**MODELOPTs:

PAGE 38

CONC DFAULT ELEV

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 5 YEARS FOR SOURCE GROUP: ALL *** INCLUDING SOURCE(S): AREA1 FLARE1 , *** DISCRETE CARTESIAN RECEPTOR POINTS *** ** CONC OF VC INMICROGRAMS/M**3 X-COORD (M) Y-COORD (M) CONC X-COORD (M) Y-COORD (M) CONC 0**#00#0@** 0**#00#**•• 0@00444 0**#**00**1**0#

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**MODELOPTs:

PAGE 97

CONC DFAULT ELEV

*** THE 1ST HIGHEST 24-HR AVERAGE

CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***

INCLUDING SOURCE(S): AREA1 ,

FLARE1 ,

*** DISCRETE CARTESIAN

RECEPTOR POINTS ***

** CONC OF VC IN

MICROGRAMS/M**3

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PAGE 101

CONC DFAULT ELEV

*** THE SUMMARY OF MAXIMUM

ANNUAL (5 YRS) RESULTS ***

** CONC OF VC IN

MICROGRAMS/M**3

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GROUP ID AVERAGE CONC RECEPTOR

(XR, YR, ZELEV, ZHILL, ZFLAG) OF TYPE GRID-ID

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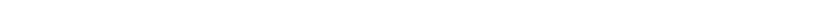
MODELOPTs: PAGE 102 CONC DFAULT ELEV * THE SUMMARY OF HIGHEST 24-HR RESULTS *** ** CONC OF VC IN MICROGRAMS/M**3 * * DATE NETWORK AVERAGE CONC (YYMMDDHH) GROUP ID RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG) OF TYPE GRID-ID

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Appendix E

Fugitive Dust Best Management Practices Plan



APPENDIX E

FUGITIVE DUST BEST MANAGEMENT PLAN

Prepared For:
ACME Inc. Landfill Site
Anytown, Ontario

JULY 2008

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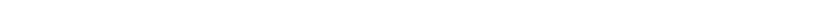
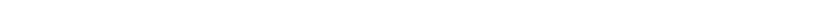


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1.0 <u>INTRODUCTION</u>

The following report details the Fugitive Dust Best Management Plan (BMP) prepared for the ACME Landfill Site (Site), located in Anytown, Ontario. The purpose of this BMP is to identify the sources of fugitive dust emissions within the Site, and to provide details about the management programs that are used to control these emissions.

This report details the best management plan in place for dealing with the sources of fugitive dust at the Site, and also to allow for the omission of fugitive dust emissions from roads and piles from the Emission Summary and Dispersion Modelling (ESDM) Report.

This BMP was prepared in support of a site-wide ESDM Report. Guidance in Appendix F "Review of Approaches to Manage Industrial Fugitive Dust Sources" of the Ontario Ministry of Environment (MOE) publication "Procedure for Preparing an Emission Summary and Dispersion Modelling Report" dated July 2005 (ESDM Procedure Document) was followed as appropriate.

The objectives of this BMP are to:

- provide an overview of the operations at the Site and identify potential sources of fugitive dust;
- assess the human health risks posed by the fugitive dust through a review of the size range and composition of the dust particles;
- discuss dust control measures and implementation frequency for each of the identified sources;
- outline maintenance and inspection procedures;
- illustrate how ongoing compliance is ensured through the use of a monitoring and record-keeping program; and
- detail the employee training program for fugitive dust control procedures.

2.0 PROCESS DESCRIPTION

The Site opened in 1990 and is expected to reach maximum capacity by the end of 2014 with a total area of approximately 49.5 hectares.

The Site operates as a typical municipal solid waste landfill. The existing landfill holds approximately 2.7 million cubic metres (m³) of waste with a total expansion of the Site to hold an ultimate capacity of approximately 3.9 million m³ of waste. The Site accepts solid,

non-hazardous waste from the Town of Anytown, Ontario. The North American Industrial Classification System (NAICS) Code for the Site is 562212 – "Solid Waste Landfill".

In accordance with O. Reg. 232/98, the landfill gas collection and control system (LGCCS) will be designed with sufficient capacity to control LFG generated by the approved Site capacity and in accordance with landfill development and operating principles. The LGCCS will control landfill gas (LFG) and greenhouse gases, and in doing so will control other issues such as odour. The LGCCS is designed to accommodate the peak LFG production rate, estimated to be 2,510 m³/hr (1,480 cubic feet per minute (cfm)) using the Scholl Canyon Model. The peak LFG production rate is expected to occur in 2015. The major components of the LGCCS include the following:

- Collection field removes LFG from the wastes within the limits of the waste disposal area and includes collection piping to convey LFG from the field to the LFG management facility;
- LFG management facility houses mechanical and electrical components required for the extraction and delivery of LFG for disposal by flaring;
- Condensate traps and forcemains removes liquid condensate from the LFG collection system and directs the condensate to the municipal wastewater system;
- Leachate management facility collects and treats leachate from the landfill and disposes of clean effluent water; and
- LFG utilization facility for processing, and utilization of the collected LFG in an environmentally sound fashion.

The primary combustion equipment will be an enclosed drum flare. The flare will have the capacity to meet the maximum production rate of LFG, as it has the capacity to combust a maximum of 1,600 cfm of LFG. Specifications provided by the flare manufacturer support a 99.9 percent (%) destruction efficiency and an 80% collection system efficiency for the Site. The flare will be a natural draft, enclosed drum flare designed for LFG with the following performance specifications:

- Minimum 875 degrees Celsius (°C) operating temperature;
- Minimum retention time of 0.75 seconds; and
- Destruction of better than 99.9% of the total hydrocarbons in the collected LFG.

The viability of LFG utilization to generate electricity with the potential to further enhance other Site facilities, such as the leachate treatment plant, will be considered from time to time as warranted by changes in energy market conditions.

A general process flow diagram for LGCCS is provided on Figure 1 – Facility Process Flow Diagram.

3.0 REGULATORY BACKGROUND

O. Reg. 419/05 "Air Pollution – Local Air Quality" regulates air quality in Ontario. An implementation schedule has been created for O. Reg.419/05, which requires those sectors that have North American Industrial Classification System (NAICS) codes listed in Schedule 4 or Schedule 5 of the Regulation to be in compliance with Schedule 3 by 2010 and 2013 respectively.

The landfill operations are classified under the NAICS code 562212 – "Solid Waste Landfill". This sector is not in Schedule 4 or Schedule 5 of O. Reg. 419/05 and therefore, must be in compliance with the new air dispersion models and air standards in Schedule 3 by 2020. The Facility has requested a speed up to assess compliance with Schedule 3 standards ahead of its phase-in date.

O. Reg. 419 Point of Impingement (POI) Standards and Guidelines govern fugitive dust emissions. The MOE defines total suspended particulate (TSP) as the fugitive dust particles suspended in the atmosphere that are less than 44 microns (μ m) in diameter. The current applicable MOE 1/2-hour standard for TSP under Schedule 1 is 100 μ g/m³, and the 24-hour standard under Schedule 3 is 120 μ g/m³. The MOE defines dustfall as the fugitive dust particles suspended in the atmosphere that are greater than 44 microns in diameter. The currently applicable MOE 1/2-hour POI criterion for dustfall is 8,000 μ g/m².

The ESDM Report is being prepared for the Site in accordance with Section 26 of O. Reg. 419/05, in support of an Application for Certificate of Approval (Air & Noise) for the installation of a LGCCS at the Site. As per Section 7.4 of the ESDM Procedure Document, fugitive dust emissions from on-site roadways and storage piles may be excluded from the ESDM Report and the associated dispersion modelling under the following special circumstances:

- the fugitive dust emissions are not likely to pose a risk to human health; and
- the emissions have been minimized through the effective implementation of a fugitive dust management plan based on best management practices.

Because both of these circumstances apply to the Site, the ESDM Report does not include fugitive dust emissions from on-site roadways and storage piles. This BMP has been prepared in support of the ESDM to demonstrate that the Site is using best management practices to minimize the potential impacts from fugitive emissions, such that they do not pose a threat to human health.

4.0 SOURCES OF FUGITIVE DUST

The sources of fugitive dust that have been identified for the landfill activities include the following:

- Paved Roads:
- Unpaved Roads;
- Storage Piles; and
- Earth-Moving Activities.

4.1 PAVED ROADS

One of the Site's roads is paved, as shown on Figure 2 – Site Plan. The paved road sustains medium to high levels of traffic and is used by all refuse vehicles and public automobiles dropping off waste at the Site.

The paved road is a potential source of PM and PM_{10} emissions, due to the accumulation of dust on the road surface deposited by vehicular traffic.

Vehicle speed, vehicle weight, moisture content, and silt content are all critical factors in the amount of fugitive dust emitted from paved roads. The particle distribution of the dust tends to have a greater percentage of fines than unpaved roads, but there is significantly less dust on paved roads. PM_{10} is the respirable fraction of particulate and can have an impact on human health. The metals content of this dust is negligible. The emissions of PM_{10} from the paved road are controlled and the off site concentrations are expected to be below levels of human health concern.

4.2 UNPAVED ROADS

There is an unpaved road located around the perimeter of the landfill area at the Site, as shown on Figure 2 – Site Plan. The unpaved roads are used for a variety of activities, such as for the

transportation of waste by refuse vehicles, transportation of daily cover by on-site vehicles, and movement of on-site backhoe and bulldozer vehicles used for earth-moving activities.

Chapter 11.19 of the USEPA AP-42 document identifies unpaved haul roads as a source of PM and PM_{10} emissions, in the form of fugitive dust. Vehicle speed, vehicle weight, moisture content, and silt content are all critical factors in the amount of fugitive dust emitted from unpaved roads. Particle sizing and composition will vary at the Site, but emissions of trace metals will be negligible. PM_{10} is the respirable fraction of particulate and can have an impact on human health. The emissions of PM_{10} from the unpaved roads are controlled and the off site concentrations are expected to be below levels of human health concern.

4.3 STORAGE PILES

The storage piles are located in the active landfilling area of the Site, as indicated on Figure 2 – Site Plan. The piles contain soils from earth-moving activities and soils used for daily cover.

Fugitive emissions from the piles are controlled; therefore, they are generally not respirable and do not pose any human health risks.

4.4 EARTH-MOVING ACTIVITIES

Loading and unloading of soils and bulldozing activities can lead to significant emissions of fugitive dust during windy conditions, if not controlled. Soil is moved in the working area of the Site by a bulldozer and backhoe.

The soil contains negligible amounts of trace metals. The emissions of PM_{10} from the activities are controlled and the off site concentrations are expected to be below levels of human health concern.

5.0 <u>CONTROL METHODOLOGY AND FREQUENCY</u>

Reducing the potential for fugitive dust generation is an ongoing commitment, especially during hot, dry summer months. This section provides an overview of the procedures in place at the Site to limit emissions of fugitive dust from potential sources.

5.1 PAVED ROADS

The Site Manager inspects the paved road weekly throughout the year, unless wet weather conditions prevail, to determine if treatment measures are being effective.

The Site paved road is side washed or vacuumed on a weekly basis, if deemed necessary by the results of the weekly inspection. If fugitive dust emissions become a concern during cold, dry winter conditions, vacuuming may be employed instead of side washing in order to avoid safety concerns as a result of ice formation on the roadway.

A speed limit of 15 km/hr is posted throughout the Site to minimize emissions of fugitive dust from vehicular traffic. Additionally, maintenance of the paved road including asphalt replacement and repairs is performed regularly as needed to keep the road in good condition.

5.2 <u>UNPAVED ROADS</u>

The unpaved road at the Site is treated with wood chips or a water spray, which acts as a dust suppressant. Dust emissions are further controlled by a posted speed limit of 15 km/hr.

The frequency of application of wood chips or watering depends on the weather, and is decided by the Site Manager based on the results of a weekly inspection.

5.3 STORAGE PILES

Frequent unloading and loading occurs at the active storage piles. During dry conditions water is sprayed directly onto the piles to mitigate fugitive dust emissions.

The frequency of watering is dependent on the weather conditions, and the results of the Site Manager's inspection.

5.4 <u>EARTH-MOVING ACTIVITIES</u>

If dozing of soils in the active landfill area and movement of cover soil occurs during dry conditions, a water spray is used to mitigate fugitive dust emissions.

6.0 INSPECTION AND MAINTENANCE PROCEDURES

Weekly routine inspections are conducted at the Site to monitor the effectiveness of dust control practices. The treated roads are reviewed as part of these weekly inspections, and further treatment requirements are identified at that time.

The findings of each weekly inspection are recorded on the 'Fugitive Dust Emissions Observation Checklist', and then reviewed by the Site Manager. Based upon the findings, dust control methods will be modified or updated. A sample copy of the checklist is provided in Table 1 – Fugitive Dust Emissions Observation Checklist.

7.0 TRAINING OF STAFF

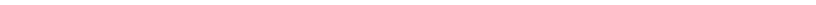
As part of maintaining best management practices for controlling and preventing fugitive dust emissions, all applicable Site staff and students are trained in implementing the fugitive dust management practices in use.

The fugitive dust management training covers the control techniques in place for managing fugitives and how to maintain them; how to conduct a fugitive dust observation check and fill out the associated paperwork; and, who to notify of any concerns or problems pertaining to fugitive dust.

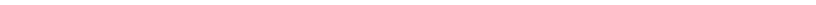
Refresher training will be provided as necessary, based on changes to the fugitive dust emission control techniques.

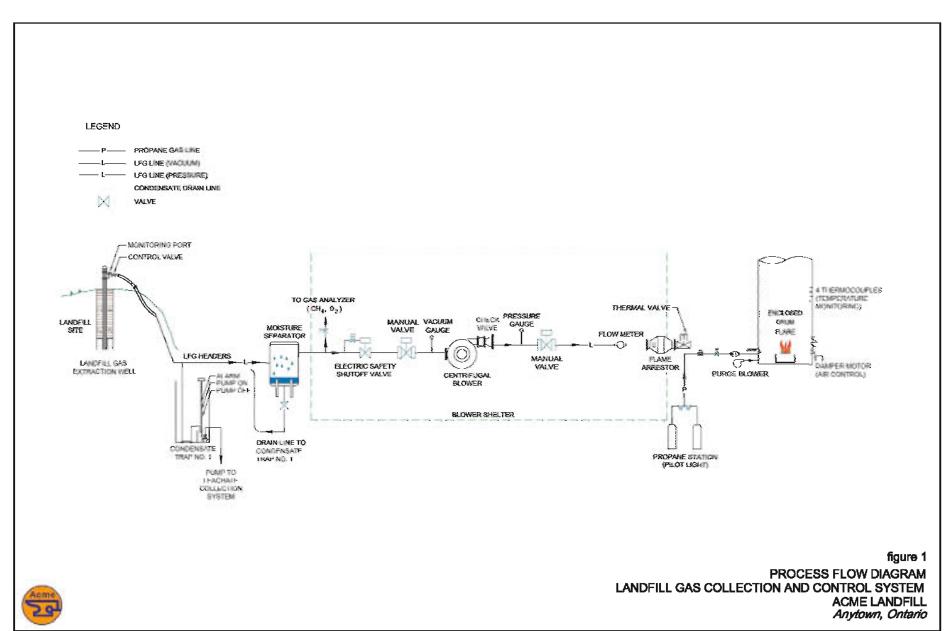
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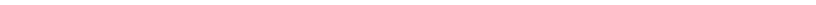
As part of implementing a successful fugitive dust best management plan, it is important to be aware of areas where fugitive dust emissions can be reduced further. ACME Inc. is endeavoring to improve their capacity for controlling fugitive dust emissions and have identified the implementation of a planting program that would accelerate reforestation and vegetation growth at the Site.

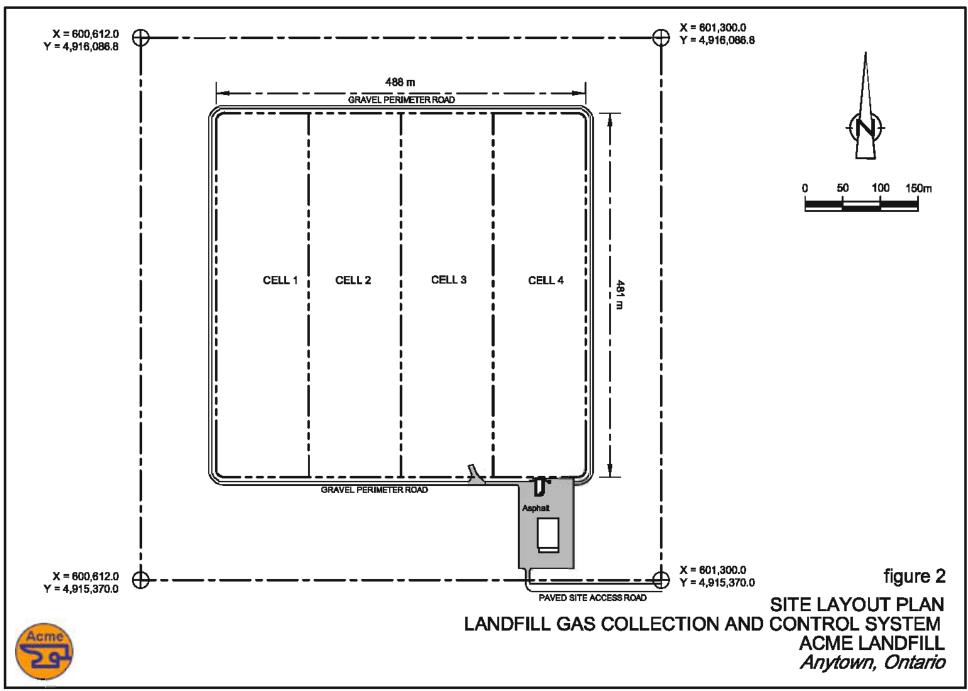


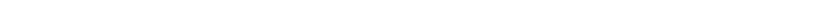


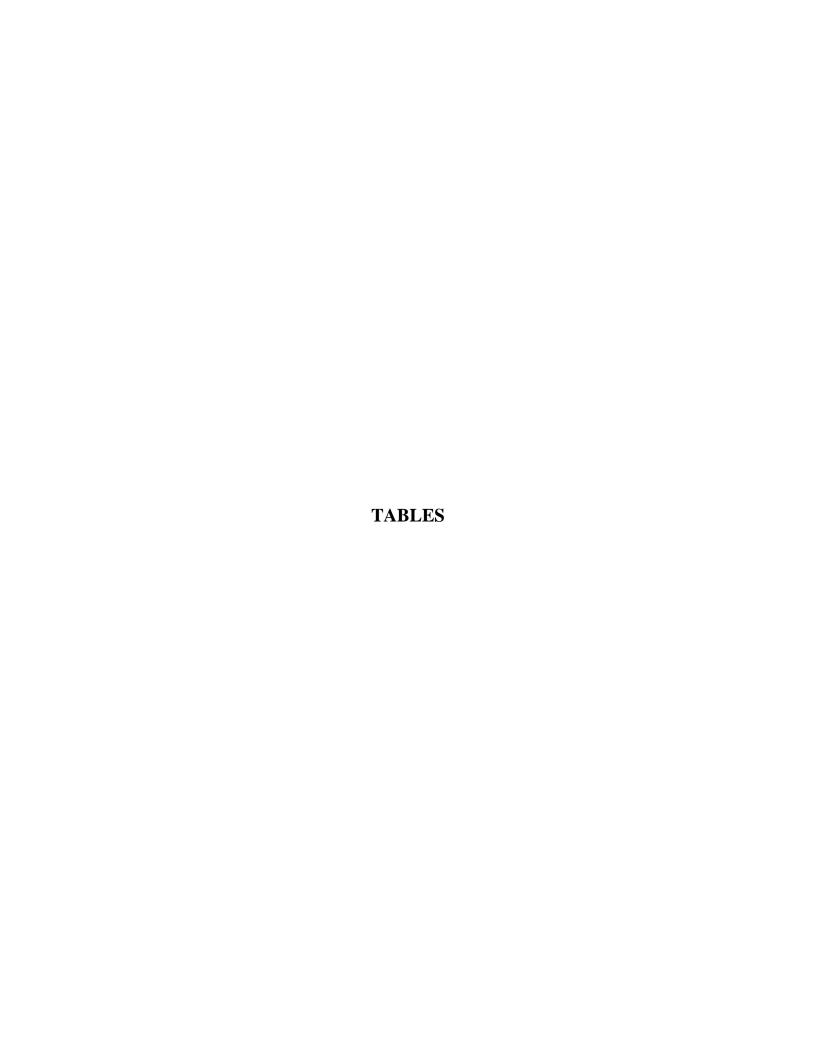












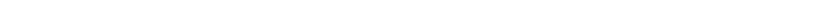
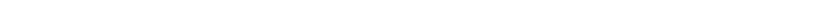
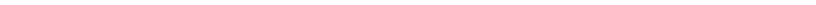


Table 1 Fugitive Dust Emissions Inspection Checklist

Completed by:		
Date:		
Weather Conditions:	Precipitation? Yes □ No □	Wind Speed: Calm □ Moderate □ High □
	Rain Snow	Wind Direction (blowing from):
SOURCE	INSPECTION POINTS	YES NO NOTES
Paved Road	Are dust emissions observed to be under control?	
	Are vehicles obeying the posted speed limit?	
	Is sidewashing required?	
	Is street sweeping\vacuuming required?	
Unpaved Roads	Are dust emissions observed to be under control?	
	Is sidewashing required?	
	Are vehicles obeying the posted speed limit?	
	Is treatment with wood chips required?	
Storage Piles	Are dust emissions observed to be under control?	
	Is water spraying required?	
Earth Moving	Are dust emissions observed to be under control?	
Activities	Are unloading areas properly shielded?	
	Is water spraying required?	
Additional Comments / Corre	ctive Action:	



Attachment 7 Acoustic Assessment Report



Signature:

Date:



ACOUSTIC ASSESSMENT REPORT CHECK-LIST

Company Name:	Acme Inc.		
Company Address: 123 Anywhere Street Anytown, ON N6N 1A1			
Location of Facility:	123 Anywhere Street Anytown, ON N6N 1A1		
document "Information	c Assessment Report was prepared in accordance with the guidance in the ministry n to be Submitted for Approval of Stationary Sources of Sound" (NPC 233) dated October m required information identified in the check-list on the reverse of this sheet has been		
Company Contact:	Acme Inc.		
Name:	Virginia Trust-Worthy		
Title:	General Manager		
Phone Number:	(905)-555-1985		

Technical Contact:	
Name:	Joe Consultant
Representing:	P.E.S. Waste Management Ltd.
Phone Number:	(905)-555-2345
Signature:	Joe Consultant
Date:	July 31, 2008

Virginia Trust-Worthy

July 31, 2008

ACOUSTIC ASSESSMENT REPORT CHECKLIST

	Required Information		
		Submitted	Explanation/Reference
1.0	Introduction (Project Background and Overview)		Section 1.0
0.0	F 794 B 1 44		
2.0	Facility Description		On attack 4.0
	2.1 Operating hours of facility and significant Noise Sources	X Yes	Section 1.0
	2.2 Site Plan identifying all significant Noise Sources		Figure 1
3.0	Noise Source Summary		
	3.1 Noise Source Summary Table		Table 1
	3.2 Source noise emissions specifications		Table 1
	3.3 Source power/capacity ratings	X Yes	Table 1
	3.4 Noise control equipment description and acoustical specifications		Table 1, Section 6.0
4.0	Point of Reception Noise Impact Calculations		
	4.1 Point of Reception Noise Impact Table	X Yes	Table 2 & 3
	4.2 Point(s) of Reception (POR) list and description	X Yes	Section 3.0
	4.3 Land-use Zoning Plan	X Yes	Appendix A
	4.4 Scaled Area Location Plan	X Yes	Figure 1
	4.5 Procedure used to assess noise impacts at each POR	X Yes	ISO 9613-2/Cadna A
	4.6 List of parameters/assumptions used in calculations		Section 4.0, Section 6.0
F 0	Acquatic Accessment Cumment		
5.0	Acoustic Assessment Summary	Van	Table 3
	5.1 Acoustic Assessment Summary Table	✓ Yes	
	5.2 Rationale for selecting applicable noise guideline limits	✓ Yes	Section 5.0
	5.3 Predictable Worst Case Impacts Operating Scenario		Section 5.0, Section 6.0
6.0	Conclusions		
	6.1 Statement of compliance with the selected noise performance limits		Section 7.0
7.0	Appendices (Provide details such as)		Appendices A - C
	Listing of Insignificant Noise Sources	Yes	
	Manufacture's Noise Specifications		Appendix B
	Calculations		Cadna A
	Instrumentation	Yes	NA
	Meteorology during Sound Level Measurements	Yes	NA
	Raw Data from Measurements	Yes	NA
	Drawings (Facility / Equipment)		Figure 1

FINAL

ACOUSTIC ASSESSMENT REPORT ACME INC. LANDFILL GAS CONTROL PLANT

Acme Inc.
123 Anywhere Street
Anytown, ON

JULY 2008

Prepared by: P.E.S. Waste Management Ltd. Toronto, Ontario

Project Number 053400-10

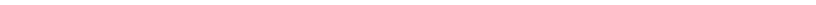
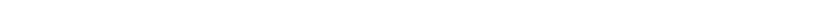


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Appendix B	Noise Specification Summary Table
Appendix C	Cadna A Model Output File



1.0 INTRODUCTION

P.E.S. Waste Management Ltd. (PES) was retained to prepare an Acoustic Assessment Report (Assessment) for the ACME Inc. Landfill Gas Control Plant Facility (Facility) located at 123 Anywhere Street in Anytown, Ontario. The Assessment is required for the proposed installation of one (1) landfill gas (LFG) flare and one (1) blower motor.

The Assessment has been prepared in support of the application for an Ontario Ministry of the Environment (MOE) Certificate of Approval (C of A) (Air).

The Site is located at 123 Anywhere Street in Anytown, Ontario. The Facility operates 24 hours per day, 7 days per week, 52 weeks per year.

The Assessment presented herein provides an evaluation of the potential noise impacts from the Facility stationary source noise emissions generated during normal operations at the sensitive receptors located nearest to the Facility. The Assessment was prepared consistent with the following MOE guidance:

- NPC-233, "Information to be Submitted for Approval of Stationary Sources of Sound, October 1995":
- NPC-205, "Sound Level Limits for Stationary Sources in Class 1 and 2 Areas (Urban), October 1995";
- NPC-232 "Sound Level Limits for Stationary Sources in Class 3 Areas (Rural), October 1995"; and
- NPC-103, "Procedures, August 1978".

The Facility is located on open space zoned land (OS) and is surrounded by agricultural zoned land (A) and green space (G). A zoning map and definitions are provided in Appendix A – Zoning Map and Definitions. A site plan is provided on Figure 1 – Landuse Zoning Designation Plan.

The Facility is located in an Acoustical Class 2 area defined by NPC-205 as a mixed acoustical environment with an elevated ambient sound level during the daytime due to traffic noise and commercial/industrial activity and a low ambient sound level during the nighttime period, defined by the natural environment and infrequent human activity.

The topography surrounding the Facility consists of rolling hills and varied elevation. Flat terrain was conservatively assumed for this assessment.

2.0 NOISE SOURCE SUMMARY

This Assessment focused on the sound emissions from the stationary noise sources identified at the Facility with a potential to adversely impact the sensitive receptors. The Noise Source Summary is provided in Table 1 – Noise Source Summary and the significant noise source locations are identified on Figure 1 – Landuse Zoning Designation Plan. PES identified the following significant noise sources identified by the Cadna modelling ID number:

1

July 31, 2008

- One (1) Landfill Gas Flare (S1); and
- One (1) Blower Motor (S2).

All indoor and outdoor stationary equipment has been included in this Assessment. There are no sources of impulse noise at the Facility.

3.0 POINT-OF-RECEPTION SUMMARY

The identification of appropriate sensitive point(s)-of-reception (POR) is necessary to conduct the Assessment for the Facility. A "point-of-reception" is any point on the premises of a person where sound, originating from other than those premises, is received. The POR may be located on permanent or seasonal residences, hotels/motels, nursing/retirement homes, rental residences, hospitals, campgrounds, parks, schools, cemeteries or places of worship.

The objective of this Assessment is to determine the predictable worst-case 1-hour equivalent sound level (1-hour Leq) at the worst-case POR. The most sensitive POR is considered to be the one at which the sound level from the Facility noise sources is greatest with respect to the applicable MOE guideline limit.

The sensitive POR are:

- POR1 Residential zoned property 880 metres (m) southwest of the LFG Plant, two-storey residence assumed at 4.5 m above grade;
- POR2 Residential zoned property 910 m south of the LFG Plant, two-storey residence assumed at 4.5 m above grade;
- POR3 Residential zoned property 733 m north of the LFG Plant, two-storey residence assumed at 4.5 m above grade; and
- POR4 Residential zoned property 956 m east of the LFG Plant, two-storey residence assumed at 4.5 m above grade.

The locations of the PORs are identified on Figure 1 – Landuse Zoning Designation Plan.

4.0 SOUND LEVEL SPECIFICATIONS

Manufacturer's specifications were used to assess the noise impact of the significant outdoor and indoor stationary noise sources.

The blower motor is located inside the LFG Flare Facility. However, no barrier building mitigation was estimated for the structure to provide a worst-case scenario.

Manufacturer noise specifications for the outdoor and indoor stationary noise sources are provided in Table B.1 of Appendix B – Noise Specification Summary Table.

2

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5.0 ASSESSMENT CRITERIA

Assessment criteria may be determined for a POR based on the MOE's minimum exclusionary sound level limits, as presented in Table 205-1 of NPC-205, or on the background sound levels experienced in the area. The "background sound level" is defined as the sound level present in the environment that is produced by noise sources other than those from the Facility, and would include traffic sound levels and sound from neighboring industrial/commercial activity. The higher of the two assessment criteria is selected for purpose of assessment.

The Facility is located in an Acoustic Class 2 Area. Class 2 Areas have the following exclusionary minimum sound level limits expressed as a 1-hour Leq that can be applied to assess the sound levels emitted by the Facility noise sources:

Time of Day Minimum Sound Level

7:00 a.m. to 7:00 p.m. 50 dBA

7:00 p.m. to 7:00 a.m. 45 dBA

Since a background noise evaluation was not conducted there are no STAMSON traffic noise predictions included and the minimum exclusionary MOE noise limits are applicable at the PORs. The nighttime noise limit of 45 dBA will be used for compliance assessment purposes since the Facility will operate continuously 24 hours per day.

6.0 IMPACT ASSESSMENT

6.1 Steady State Noise Impact

The worst-case assessment of steady state noise sources at the selected POR was based on manufacturer noise specifications. Cadna A Acoustical Modeling Software (Cadna A) was used to model the potential impacts of the significant noise sources. Cadna A calculates sound level emissions based on the ISO 9613-2 standard. The worst-case cumulative facility-wide stationary source sound levels estimated at the receptor(s) included attenuation affects due to geometric divergence, atmospheric attenuation, barriers/berms, ground absorption and directivity, as applicable for all significant noise sources.

The Facility was modelled based on the worst-case simultaneous operation of one (1) blower motor unit and one (1) landfill gas flare using the maximum sound level documented in the manufacturer specifications.

The sound levels predicted at the nearest PORs subject of this assessment are summarized in Table 2 - Point-Of-Reception Noise Impact – Unattenuated Sound Levels.

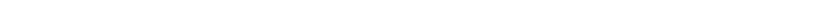
3

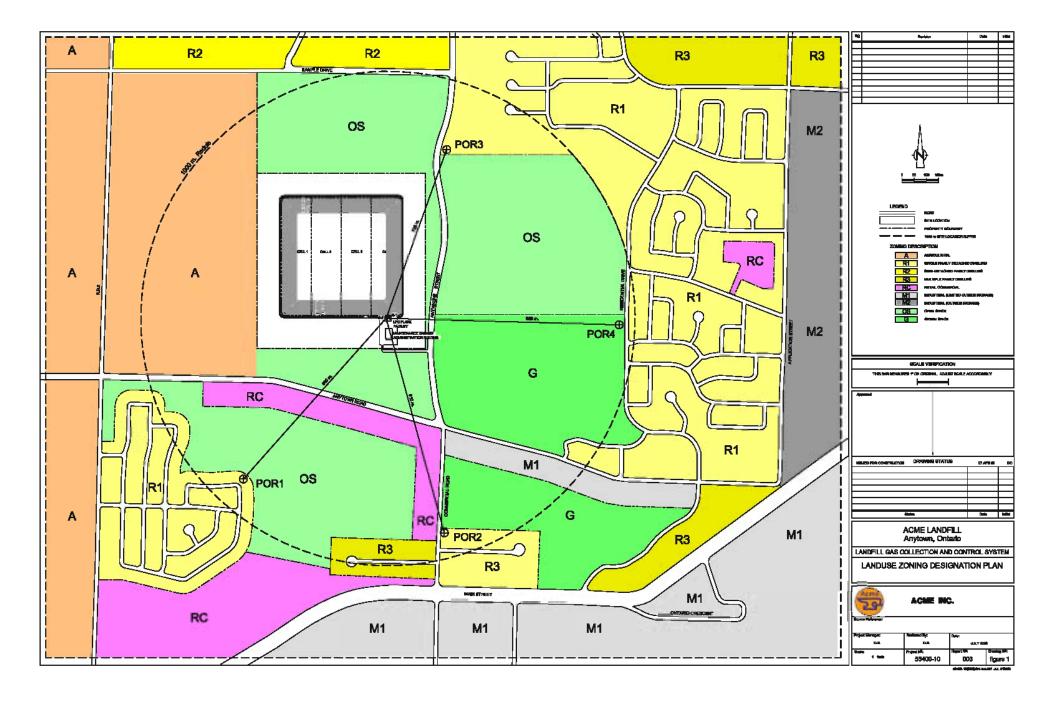
The Cadna A model output file is provided in Appendix C – Cadna A Model Output File.

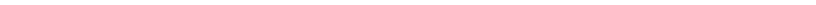
7.0 CONCLUSIONS

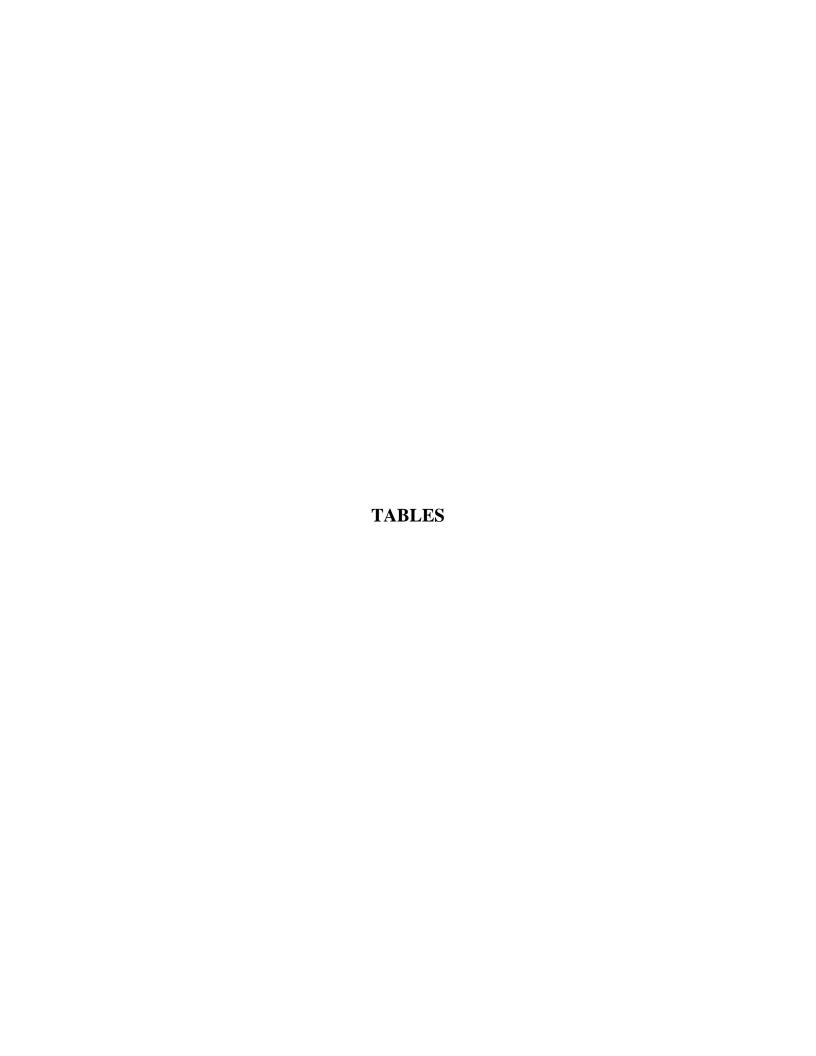
The steady-state sound levels predicted at the PORs are below the minimum MOE nighttime sound level limit, as summarized in Table 3 - Acoustic Assessment Summary – Steady - State Sound Levels.











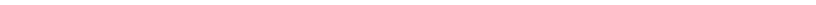


Table 1

Noise Source Summary Landfill Gas Control Plant - Acme Inc. Anytown, Ontario

Cadna A ID	Source Description	Type of Noise Source	Sound Power Level (1) (dBA)	Source Location (2)	Sound Characteristics (3)	Noise Control Measures (4)
S1	Landfill Gas Flare	Point	92.8	О	S	U
S2	Blower Motor Noise	Point	92.8	I	S	U (5)

Notes:

(1) Sound Power Level in dBA calculated from sound pressure level and reference distance.

(2) Source Location:

o - located/installed outside of building I

- located/installed inside of building

(3) Sound Characteristics:

- Steady

 Quasi Steady Impulsive Impulsive Q

I - Buzzing В T - Tonal C - Cyclic

(4) Noise Control Measures:

S - silencer, acoustic louvre, muffler

A - acoustic lining, plenum В - barrier, berm, screening

L - lagging

Е - acoustic enclosure

O - other U - uncontrolled AC - administrative control

(5) Blower motor is housed in a building, however no reduction estimated as worst-case.

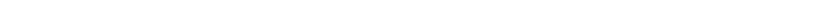


Table 2 Point-of-Reception Noise Impact - Unattenuated Sound Levels Landfill Gas Control Plant - Acme Inc. Anytown, Ontario

Cadna A		Residential Zoned Southwest of	of LFG Plant - POR1	Residential Zoned South	h of LFG Plant (POR2)	Residential Zoned North	of LFG Plant (POR3)	Residential Zoned East	t of LFG Plant (POR4)
Source		Distance to	Sound Pressure Level	Distance to	Sound Pressure Leve	Distance to	Sound Pressure Leve	Distance to	Sound Pressure Level
ID	Significant Noise Source Description	Receptor	at Receptor (1)	Receptor	at Receptor (1)	Receptor	at Receptor (1)	Receptor	at Receptor (1)
		(m)	(Leq)	(m)	(Leq)	(m)	(Leq)	(m)	(Leq)
S1	Landfill Gas Flare	910.8	25.5 (dBA)	936.6	25.3 dBA	728.7	27.6	962.0	25.1
S2	Blower Motor Noise	897.0	26.4 (dBA)	928.6	26.0 dBA	719.1	28.3	949.4	25.7
	Worst-case Total	Facility Sound Level (1-hour Leq)	: 29.0 dBA		28.7 dBA		31.0 dBA		28.4 dBA

Notes:

⁽¹⁾ Sound Level at the Receptor was calculated using Cadna A Acoustical Modelling Software.

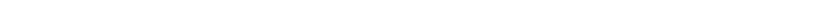


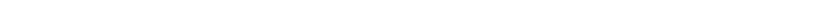
Table 3

Acoustic Assessment Summary - Steady State Sound Levels
 Landfill Gas Control Plant - Acme Inc.
 Anytown, Ontario

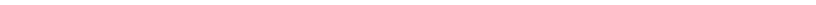
Point-of- Reception ID	Point of Reception Description	Attenuated Sound Level at Point of Reception Predicted (Leq)	Verified by Acoustic Audit (Yes/No)	Performance Limit (1) (Leq)	Compliance with Performance Limit (Yes/No)
POR1	Residential Zoned Southwest of LFG Plant	29.0 dBA	No	45 dBA	Yes
POR2	Residential Zoned South of LFG Plant	28.7 dBA	No	45 dBA	Yes
POR3	Residential Zoned North of LFG Plant	31.0 dBA	No	45 dBA	Yes
POR3	Residential Zoned East of LFG Plant	28.4 dBA	No	45 dBA	Yes

Notes:

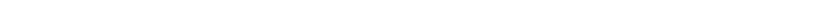
(1) Exclusionary MOE NPC-205 nighttime noise limit.

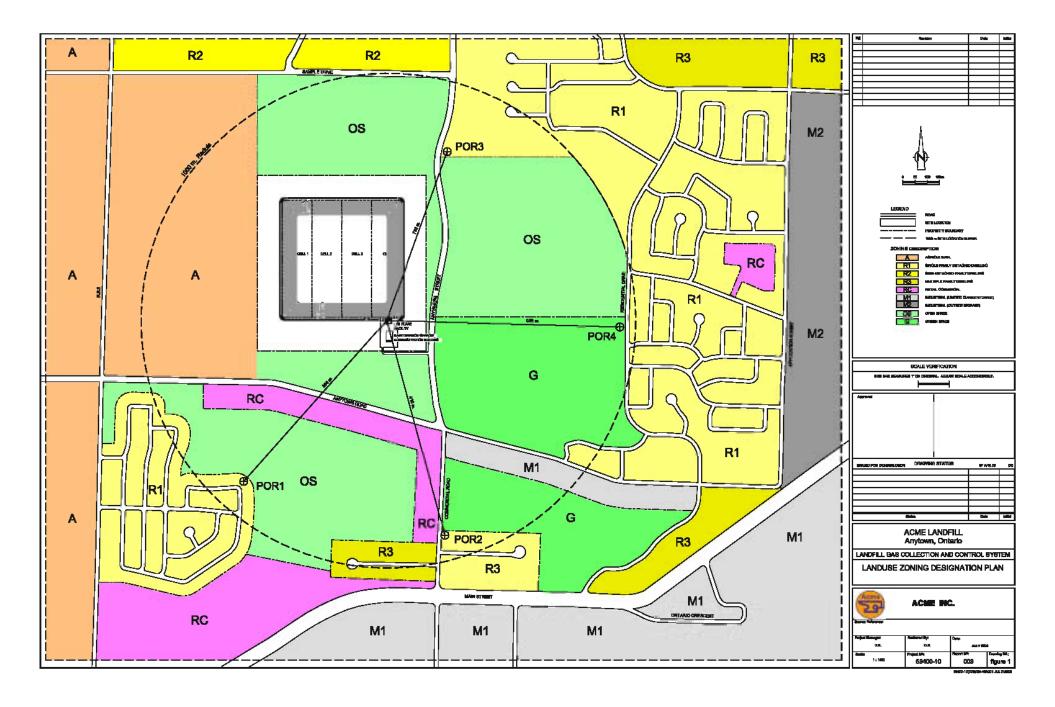


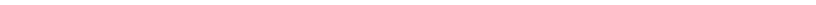




Appendix A Zoning Map And Definitions







Appendix B

Noise Specification Summary Table

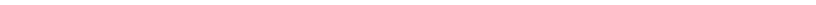
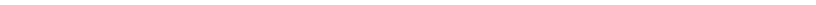


Table B.1

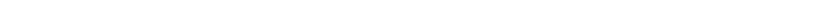
Noise Source Specification Summary Table Landfill Gas Control Plant - Acme Inc. Anytown, Ontario

Reference

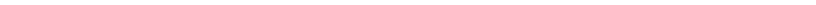
Cadna	Source Description	Make	Model	Specification	Quantity	Location	Data Type				Octave	Band Sound Leve	el Data				Total	HAG	Distance
ID								31.5	63	125	250	500	1K	2K	4K	8K	(dB)	(m)	(m)
S1	Landfill Gas Flare - Exhaust Noise	IFG Specialties	EF84018	1,600 cfm	1	Outdoors	Sound Pressure Level - Linear (dB)	85	85	85	85	85	85	85	85	85		9	1
S2	Blower Motor No. 4 - motor noise	Gardner Denver	870	2,800 cfm	1	Inside	Sound Pressure Level - A-weighted (dBA)	85	85	85	85	85	85	85	85	85		2	1



Appendix C Cadna A Model Output File



Configura	tion
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (m)	2000.00
Min. Dist Src to Revr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (m)	1000.00
Min. Length of Section (m)	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	1
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rovr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (°C)	10
rel. Humidity (%)	70
Ground Absorption G	0.00
Wind Speed for Dir. (m/s)	3.0
Roads (???)	
Railways (???)	
Aircraft (???)	
Strictly acc. to AzB	



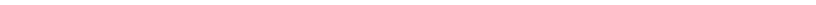
Name: POR1

ID: POR1

X: 593343.16 Y: 4813338.60

Z: 4.50

				Poi	nt Sou	rce, IS	O 9613	3, Nar	ne: "l	=lare",	ID: "F	lare"							
Nr.	X	Υ	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL.	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	594232.73	4813533.78	9.00	0	500	92.8	92.8	0.0	0.0	70.2	1.8	-4.7	0.0	0.0	0.0	0.0	-0.0	25.5	25.5
				Po	int Soi	urce, IS	O 961	3, Na	me: "	Blowe	r", ID:	"\$2"							
Nr.	X	Y	Z		int Sou	urce, IS LxT	O 961 LxN	3, Na K0	~			···	Afol	Ahous	Abar	Cmet	RL	ĻrT	LrN
Nr.	X (m)	Y (m)	Z (m)			<u></u>		3, Na K0 (dB)	~			Agr	Afol (dB)	Ahous (dB)	Abar (dB)	Cmet (dB)	RL (dB)	LrT	LrN dB(A)



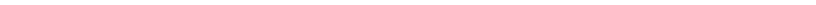
Name: POR2

ID: POR2 X: 593566.83

Y: 4812875.17

Z: 4.50

				Po	int Sou	rce, IS	O 9613	3, Nar	me: "	Flare",	ID: "F	lare"							
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	D¢	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)	,	(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
- 1	594232.73	4813533.78	9.00	0	500	92.8	92.8	0.0	0.0	70.4	1 8	-4.7	0.0	ΛΛ	0.0	0.0	-0.0	25.3	25.2
	394232.73	4010000.76	9.00		300	32.0	32.0	0.0	0.0	70.4	1.0		0.0	0.0	0.0	0.0	-0.0	20.0	20.0
	394232.73	4613333.76	9.00	Po			SO 961				, ,,,,		0.0		0.0	0.0	-0.0	20.0	20.0
Nr.	X	Y	z.00			urce, IS				Blowe	r", ID:	"S2"		Ahous	Abar		RL	LrT	LrN
Nr.	X	Y (m)	Z (m)		int Sou	urce, IS	SO 961		me: "	Blowe	r", ID:	"S2"		Ahous	Abar		RL (dB)	LrT dB(A)	LrN dB(A)



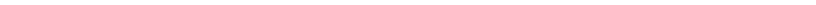
POR3 Name:

ID: POR3 X: 594799.46 Y: 4813976.30 Z: 4.50

Z	,	4.50

······································		***************************************		Poi	nt Sou	ırce, IS	O 961	3, Nar	ne: "I	Flare",	ID: "F	lare"					PV1.997		
Nr.	X	Υ	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	594232.73	4813533.78	9.00	0	500	92.8	92.8	0.0	0.0	68.1	1.4	-4.3	0.0	0.0	0.0	0.0	-0.0	27.6	27.6

				Poi	int Sou	ırce, IS	O 961	3, Na	me: "	Blowe	r", ID:	"S2"							
Nr.	X	Υ	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	594217.92	4813537.19	2.00	0	500	92.8	92.8	0.0	0.0	68.3	1.4	-5.2	0.0	0.0	0.0	0.0	-0.0	28.3	28.3



Name: POR4

ID: POR4 X: 594882.13 Y: 4812841.28

Z: 4.50

				Poi	nt Sou	irce, IS	O 9613	3, Na	me: "	Flare"	, ID: "F	lare"			·				
Nr.	Χ	Υ	Z	Refl.	Freq.	LxT	LxN	ΚQ	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)	:	(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
4									<u> </u>		1					***************************************		3	·
	594232.73	4813533.78	9.00	0	500	92.8	92.8	0.0	0.0	70.5	1.8	-4.7	0.0	0.0	0.0	0.0	-0.0	25.1	25.1
	594232.73	4813533.78	9.00	Po			92.8 SO 961	0.0 3, Na	0.0 me: "	70.5 Blowe	1.8 r", ID:	-4.7 "S2"	0.0	0.0	0.0	0.0	-0.0	25.1	25.1
Nr.	594232.73 X	4813533.78 Y	9.00 Z			urce, IS	02.0	0.0 3, Na K0			·	,	0.0	Ahous	0.0 Abar	0.0	-0.0 RL	25.1	25.1
Nr.	X (m)	Y (m)	9.00 Z (m)		int So	urce, IS	O 961	0.0 3, Na K0 (dB)			·	,	Afol (dB)	Ahous (dB)	O.0 Abar (dB)	Cmet (dB)	-0.0 RL (dB)	25.1 LrT dB(A)	25.1 LrN dB(A)